

FIG. 1A

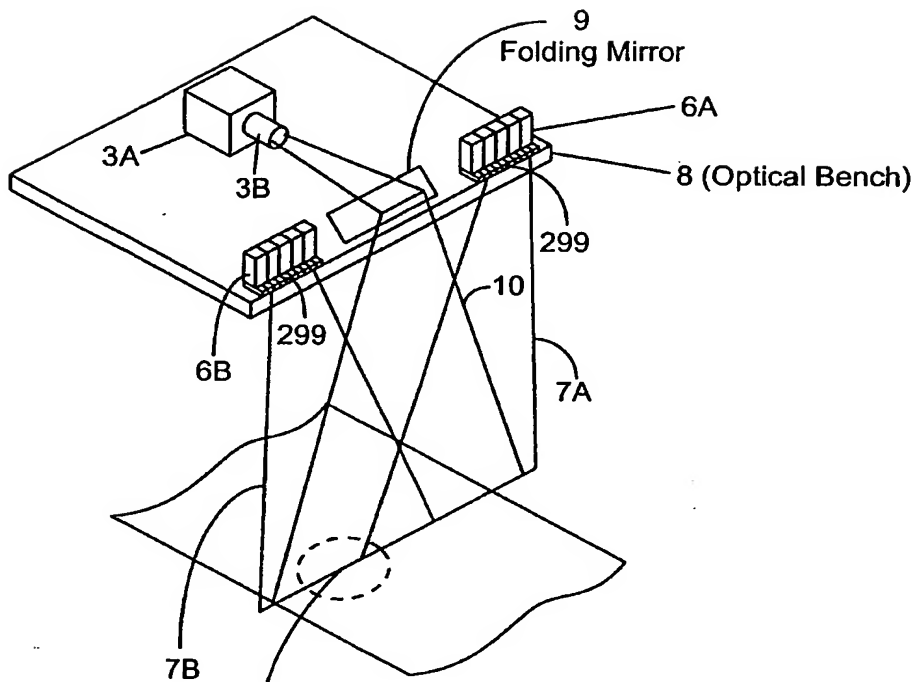
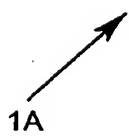


FIG. 1B1



Magnified Field of View of CCD
sensor element on object

Width of projected Planar
Laser Illumination Beam
on object

FIG. 1B3

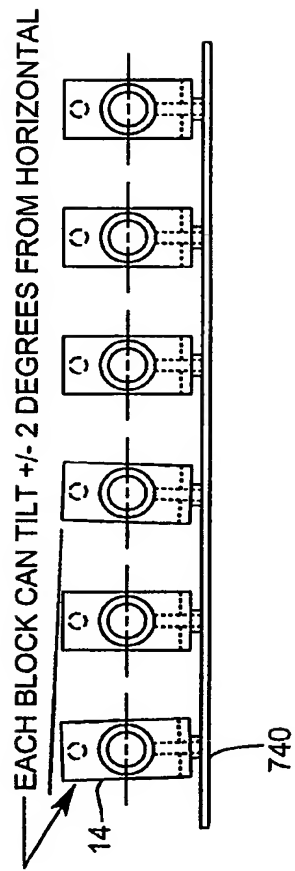


FIG. 1B4

VLD BLOCK CAN PITCH FORWARD FOR ALIGNMENT WITH OTHER VLD BEAMS

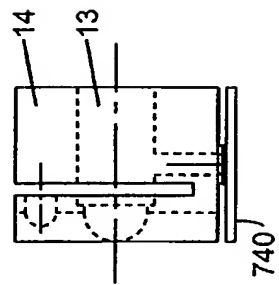
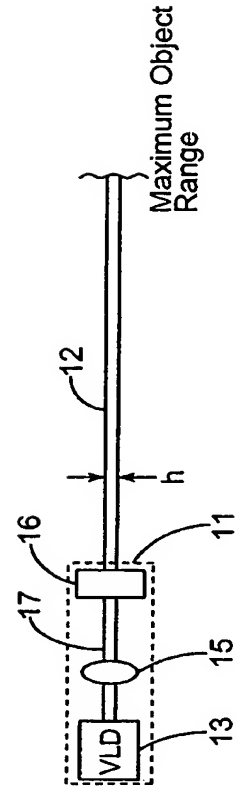
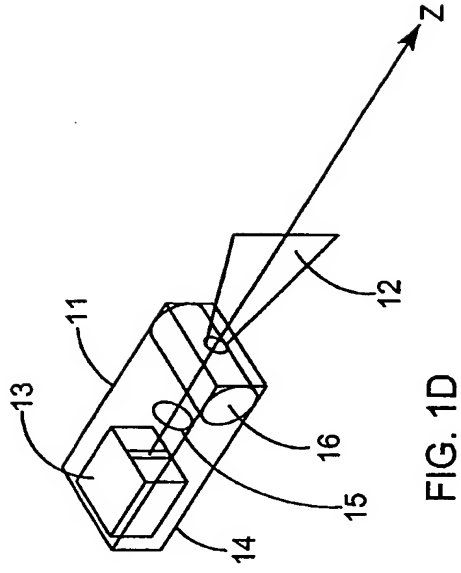
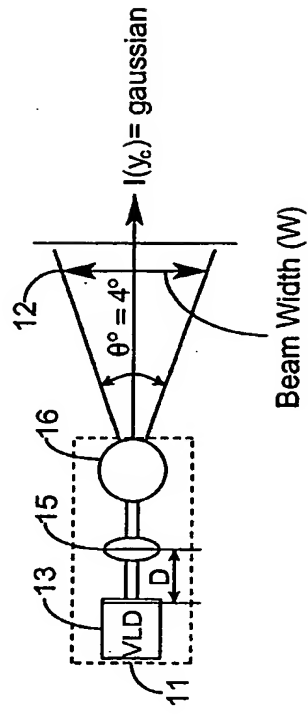
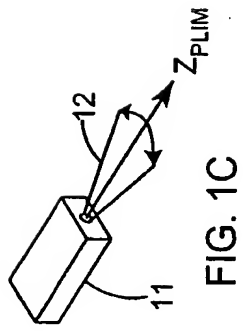


FIG. 1B5



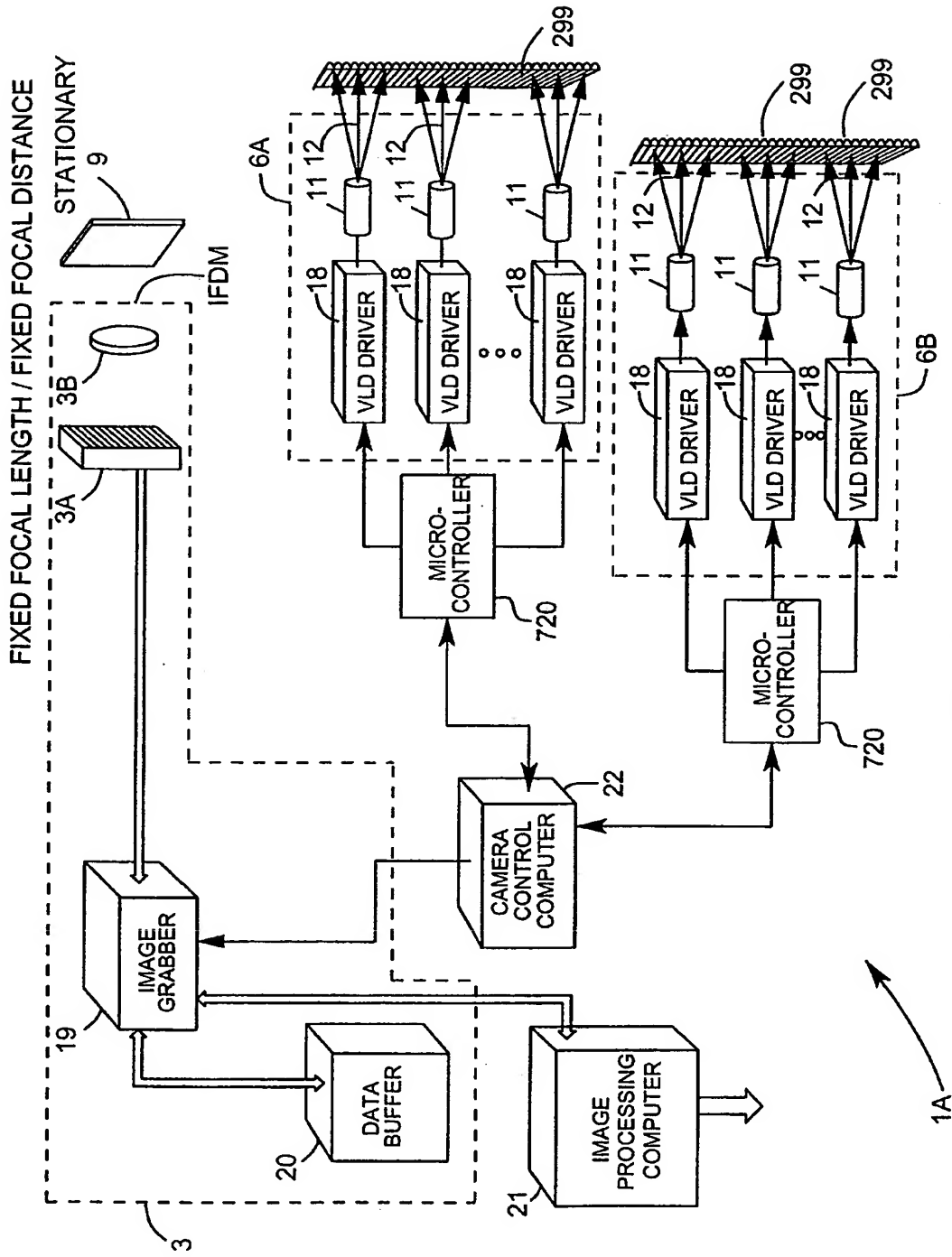


FIG. 1F

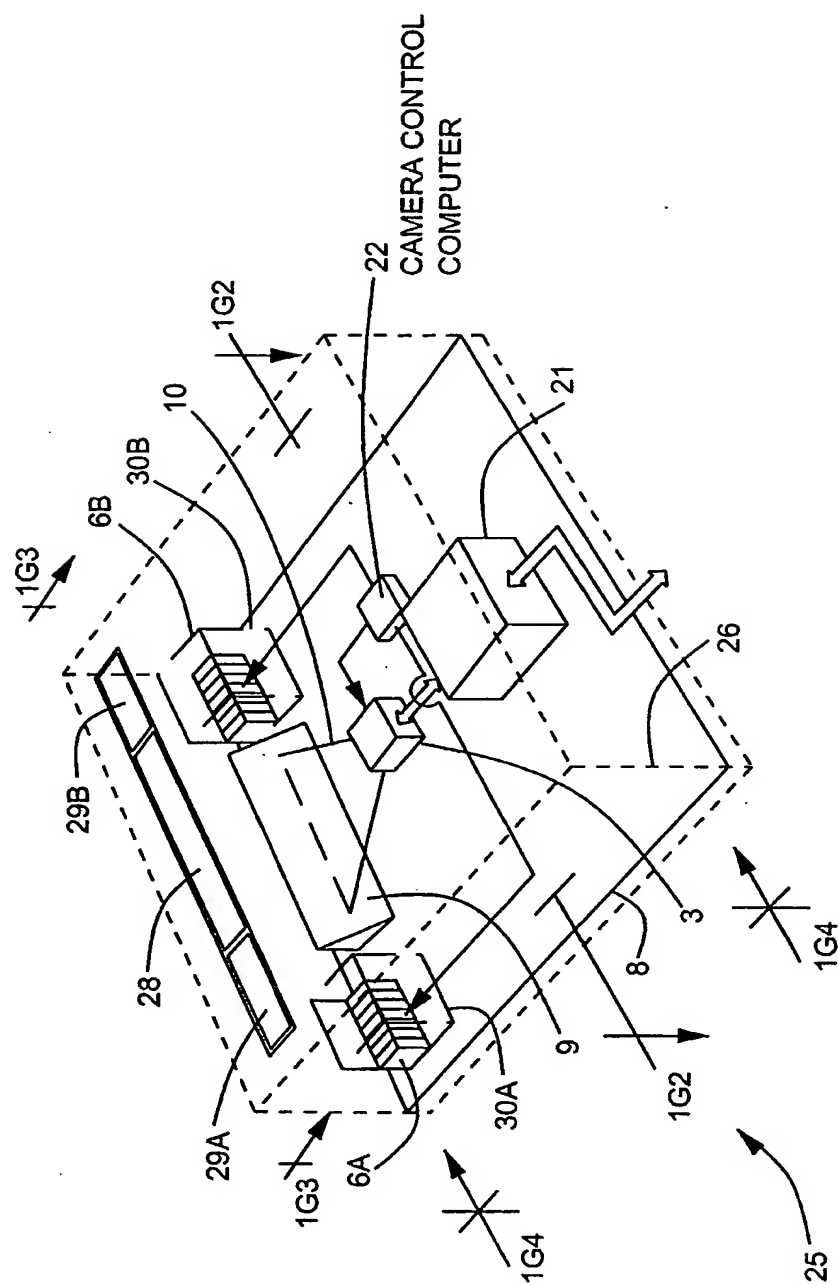


FIG. 1G1

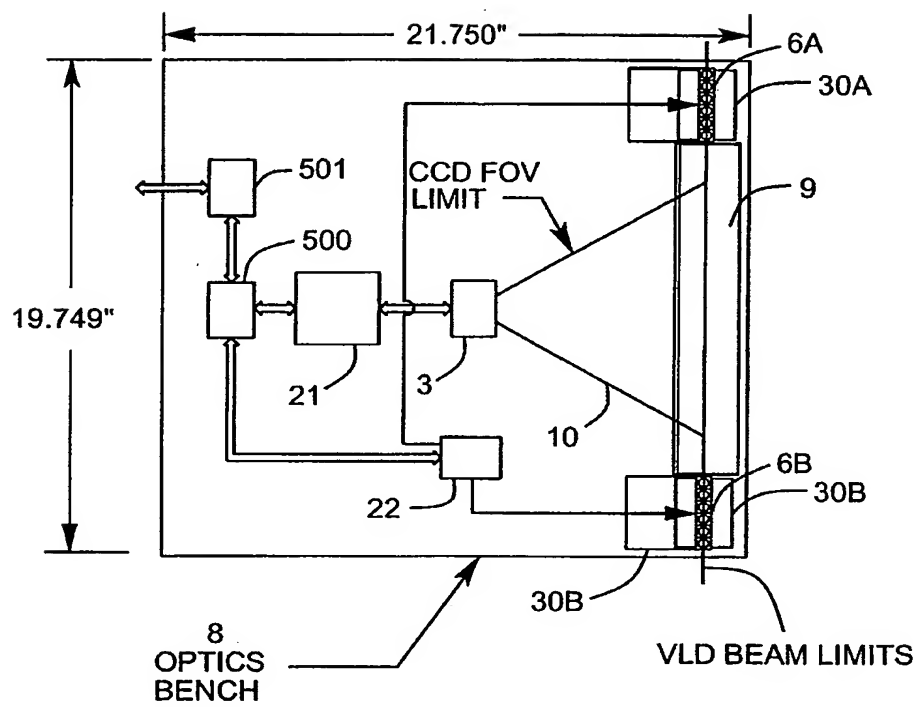


FIG. 1G2

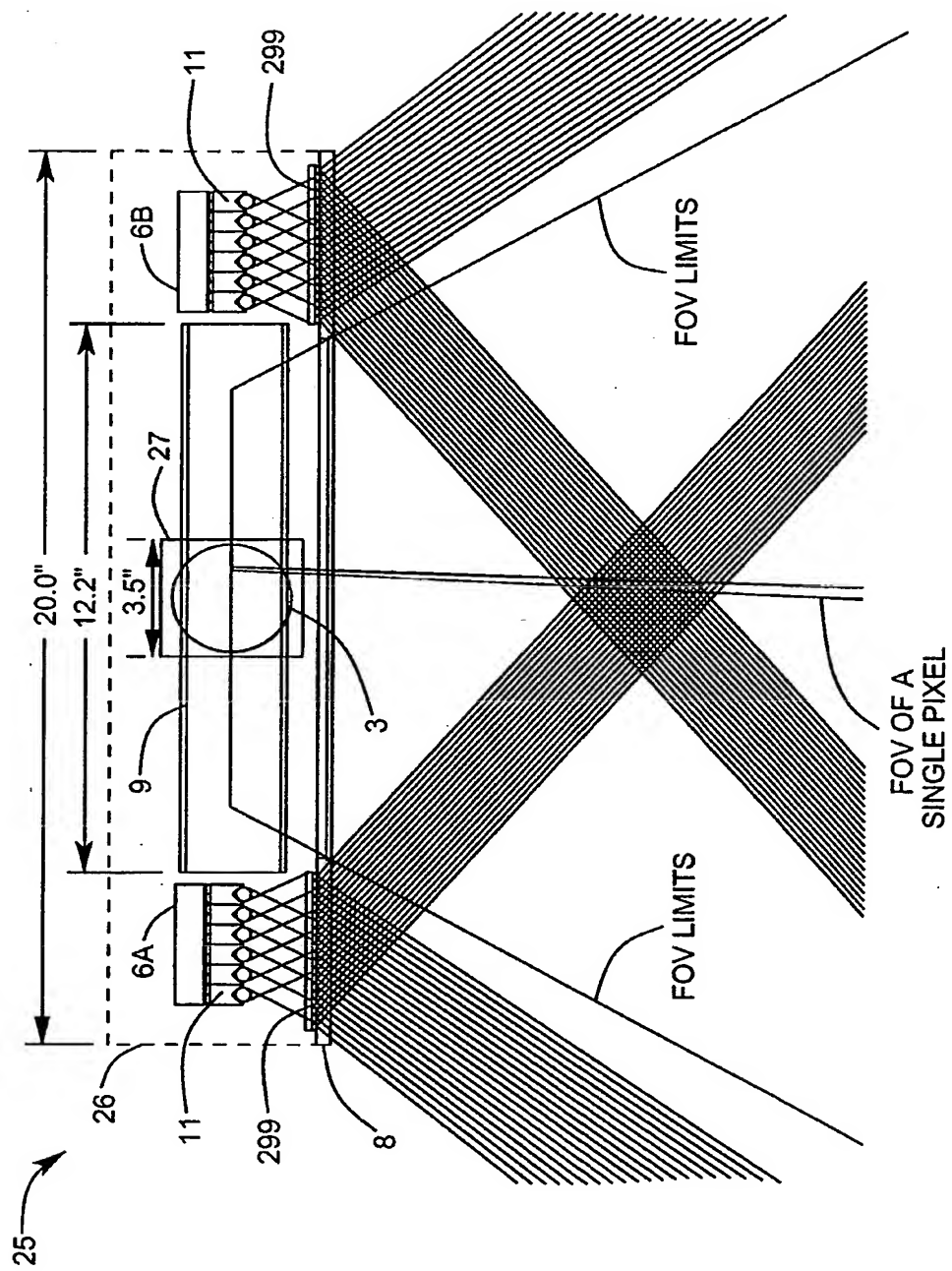


FIG. 1G3

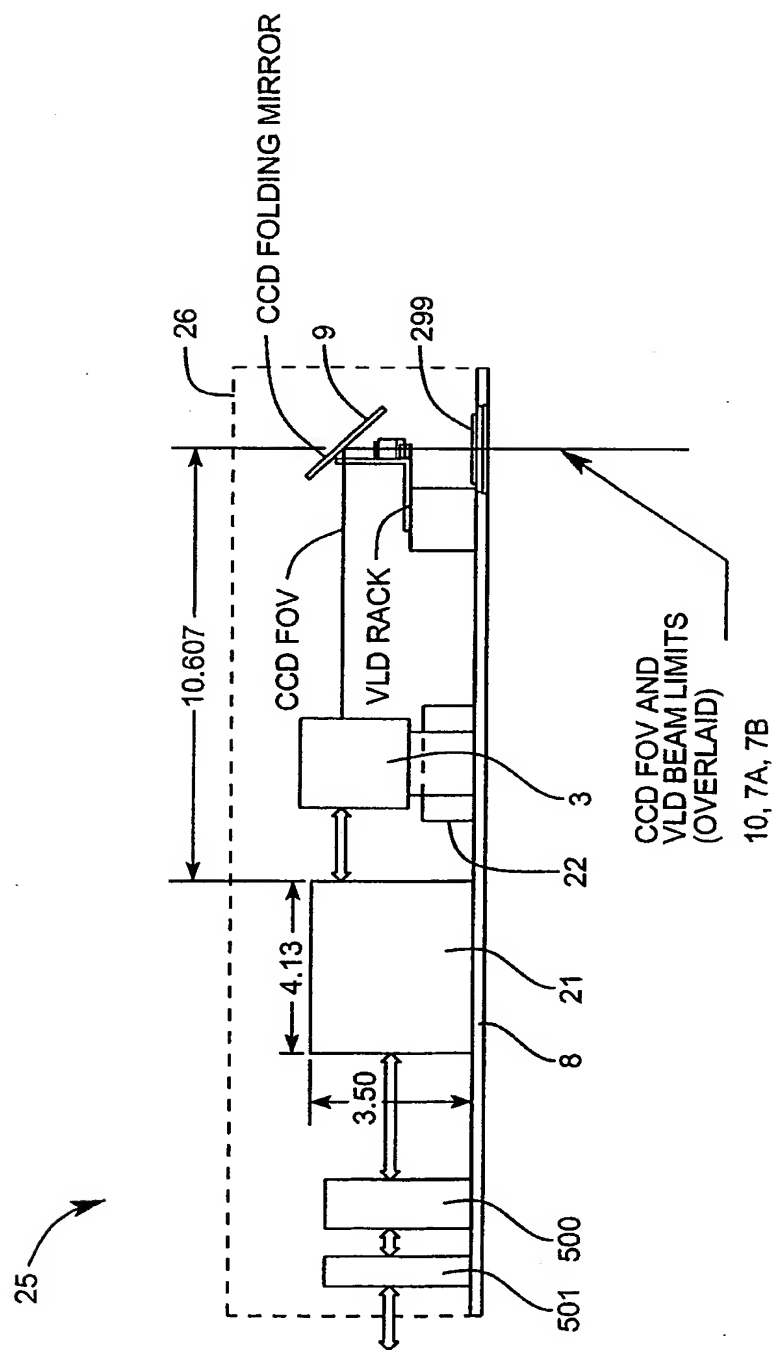


FIG. 1G4

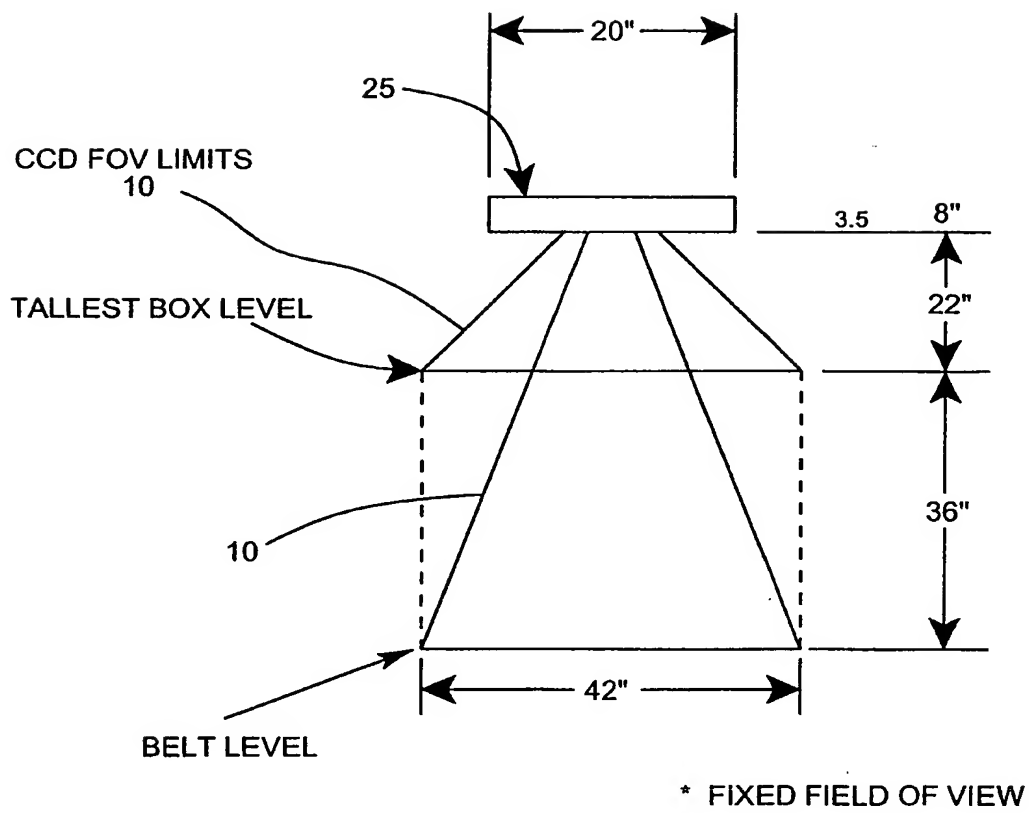


FIG. 1G5

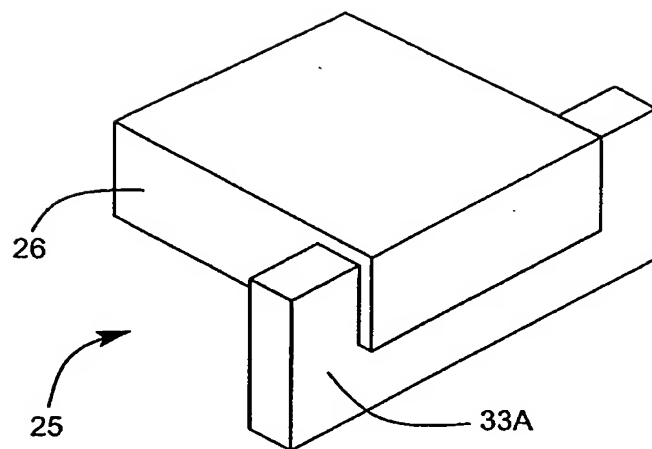


FIG. 1G6

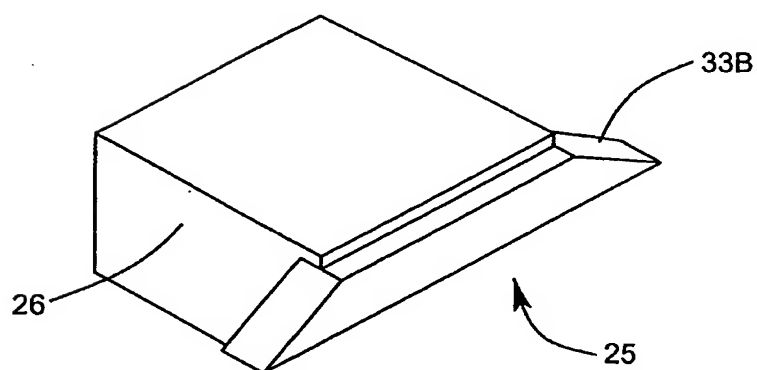


FIG. 1G7

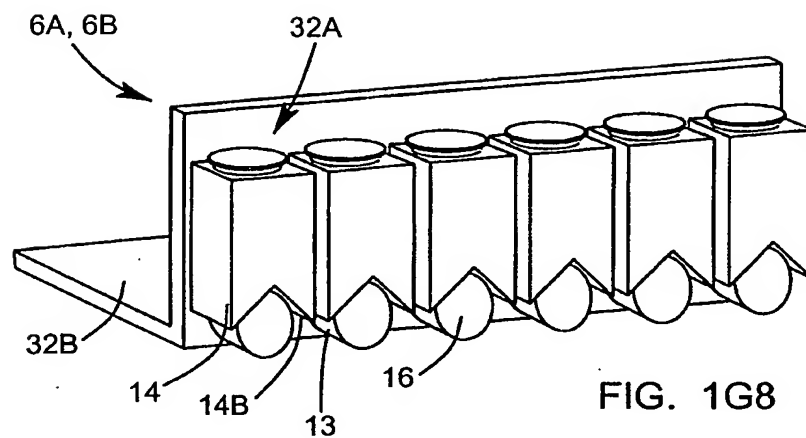


FIG. 1G8

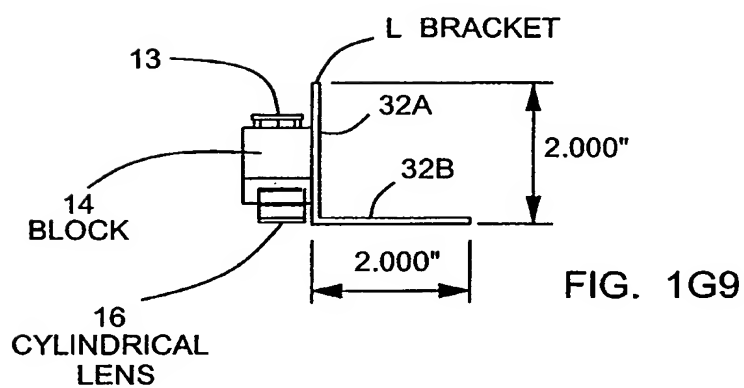


FIG. 1G9

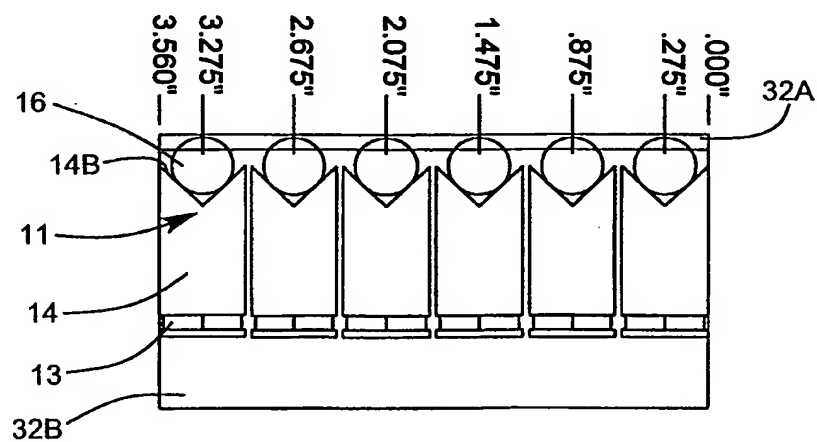


FIG. 1G10

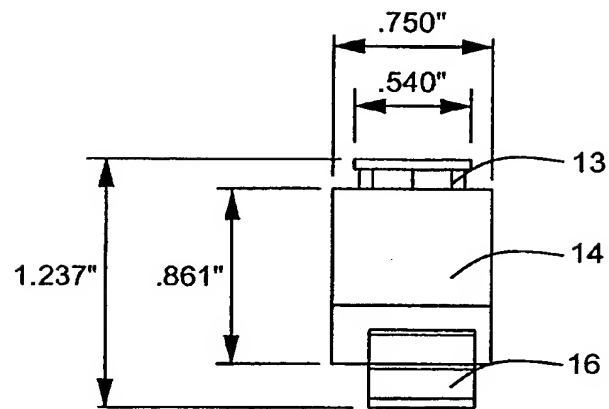


FIG. 1G11

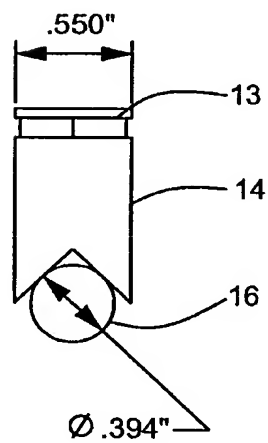


FIG. 1G12

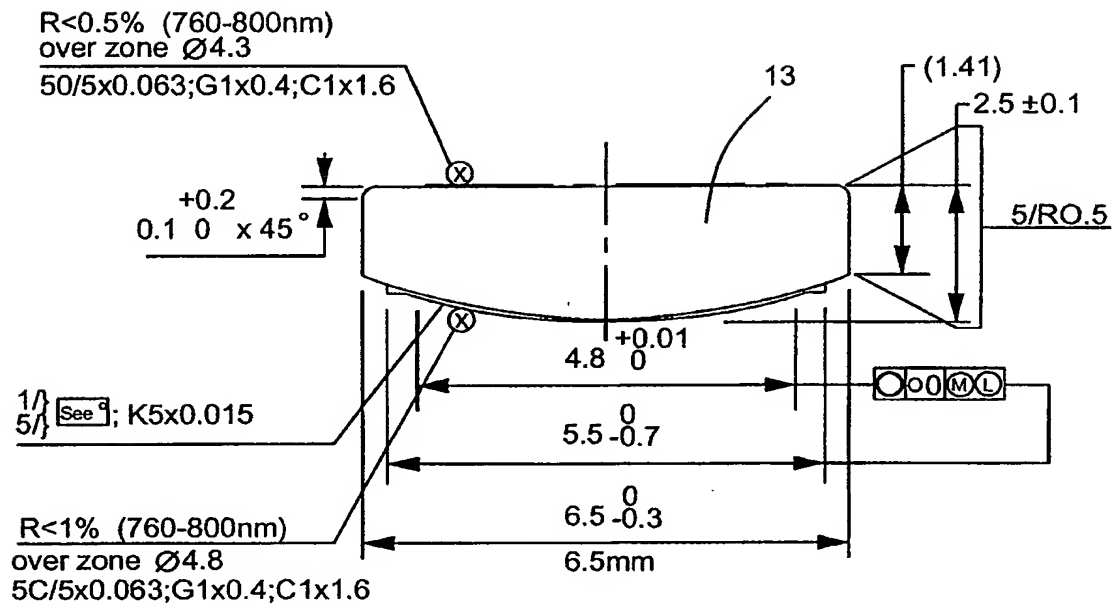


FIG. 1G13

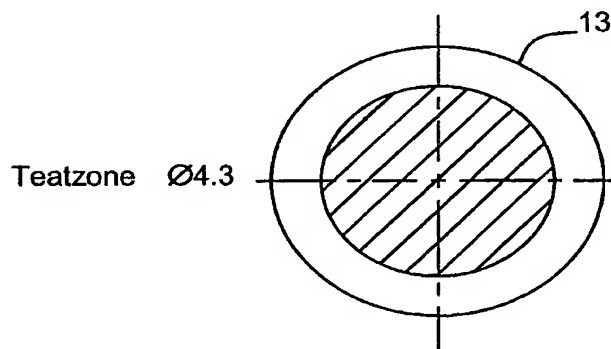


FIG. 1G14

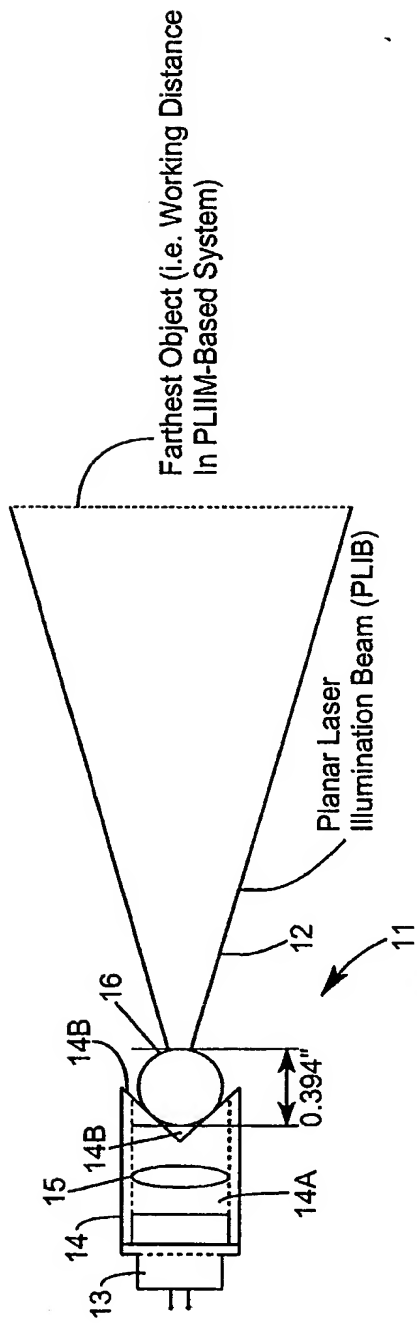


FIG. 1G15A

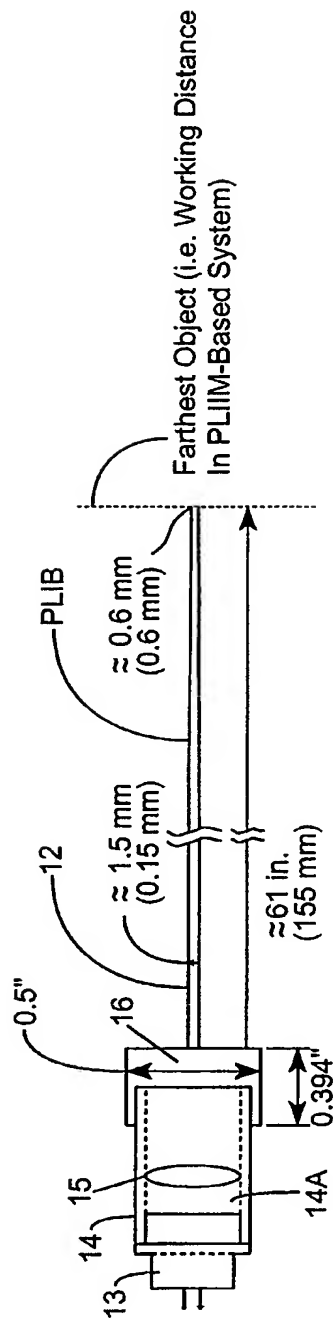


FIG. 1G15B

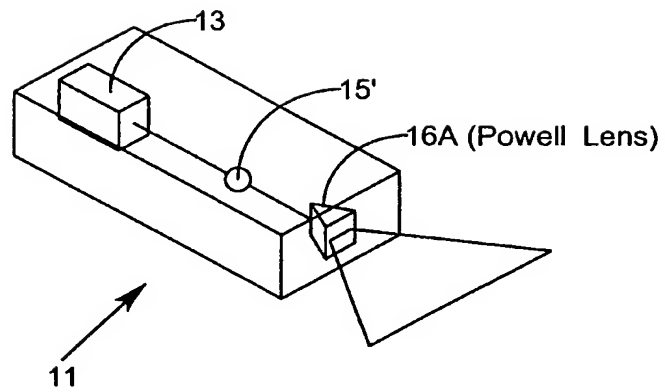


FIG. 1G16A

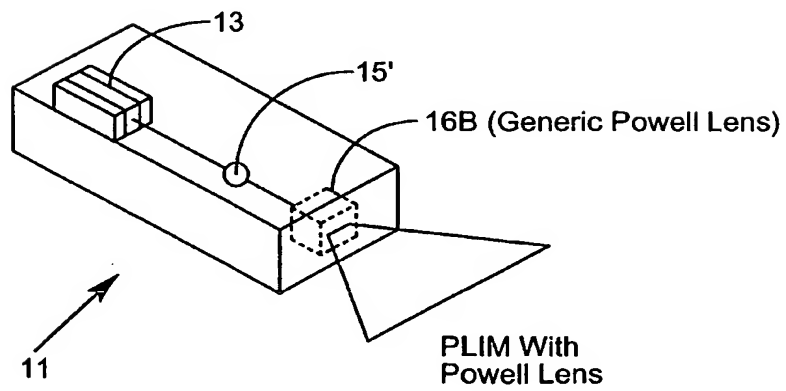


FIG. 1G16B

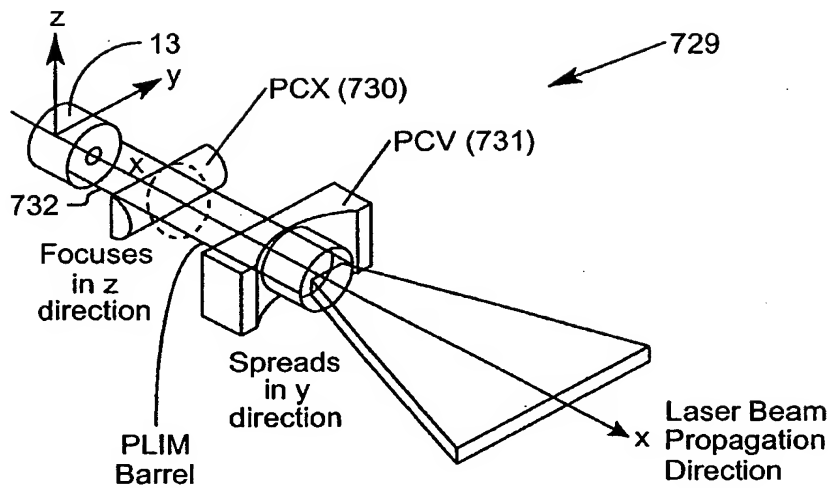


FIG. 1G17A

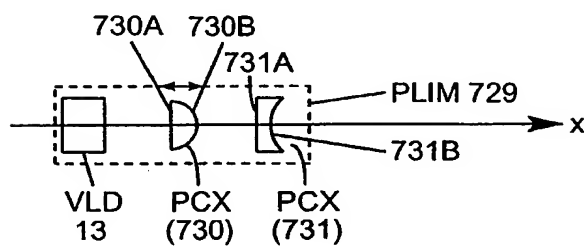


FIG. 1G17B

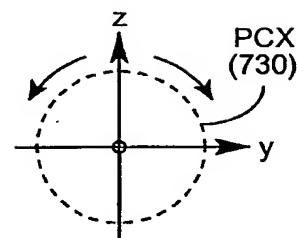


FIG. 1G17C

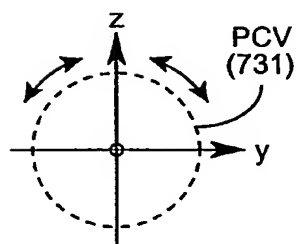


FIG. 1G17D

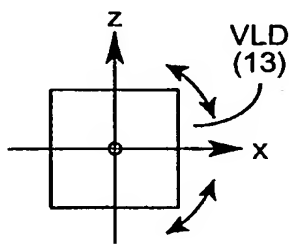


FIG. 1G17E

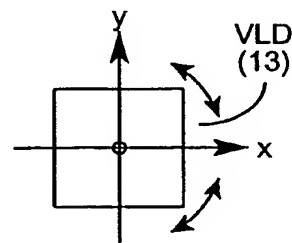


FIG. 1G17F

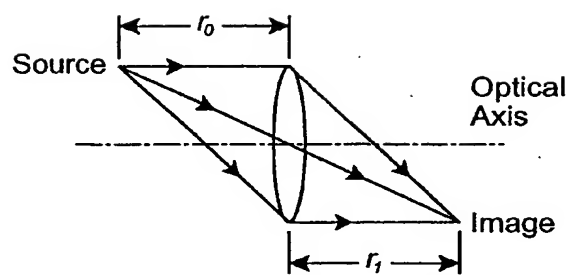


FIG. 1H1

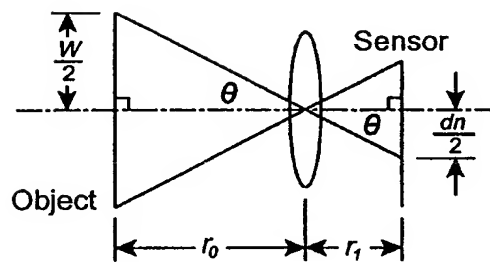


FIG. 1H2

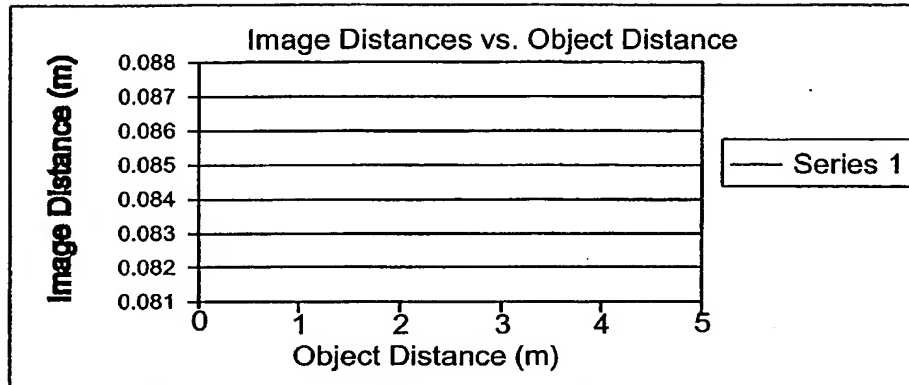


FIG. 1H3

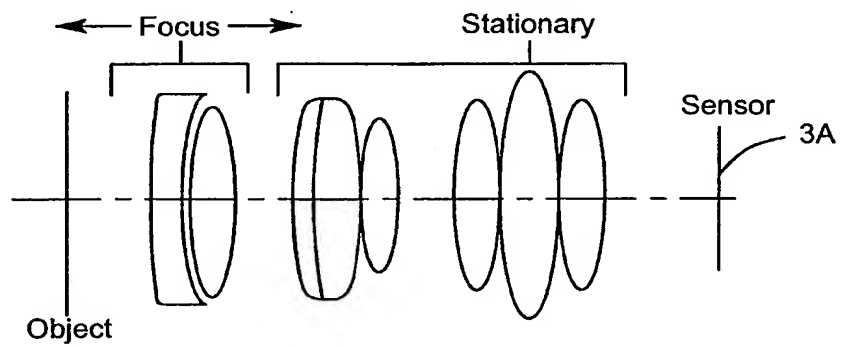


FIG. 1H4

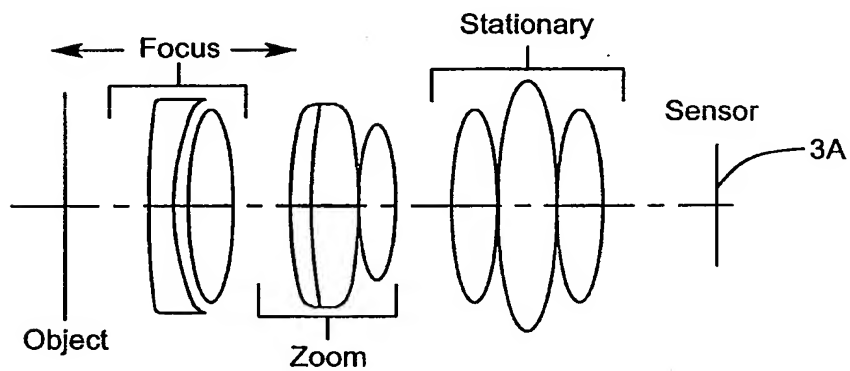


FIG. 1H5

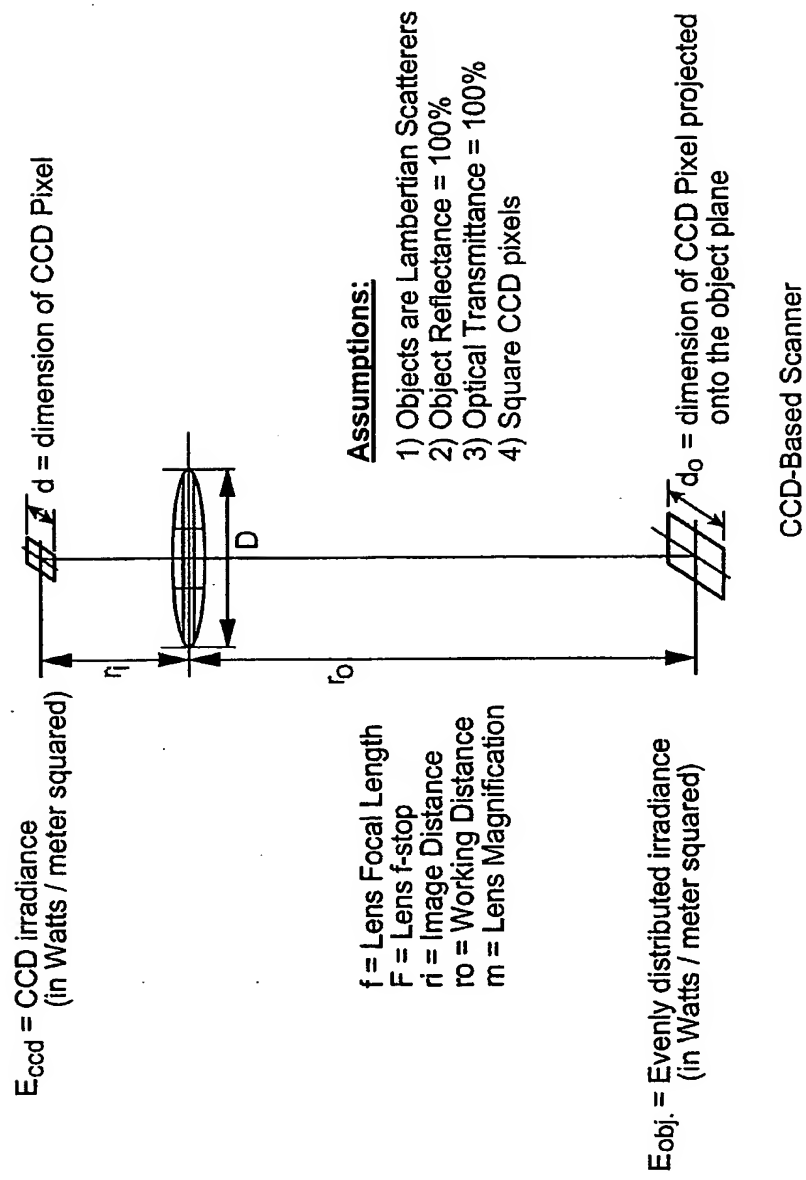


FIG. 1H6

FIRST GENERALIZED METHOD OF REDUCING
SPECKLE-NOISE PATTERNS AT IMAGE DETECTION
ARRAY OF THE IFD SUBSYSTEM (3)

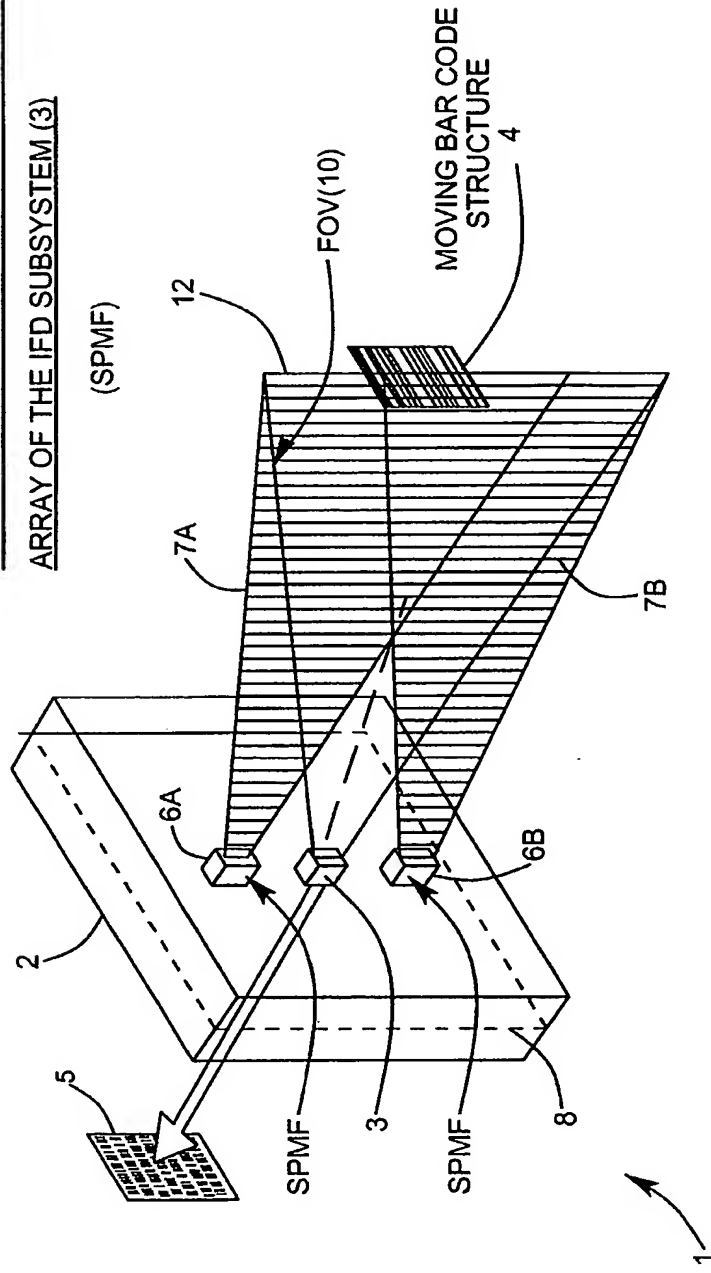


FIG. 111

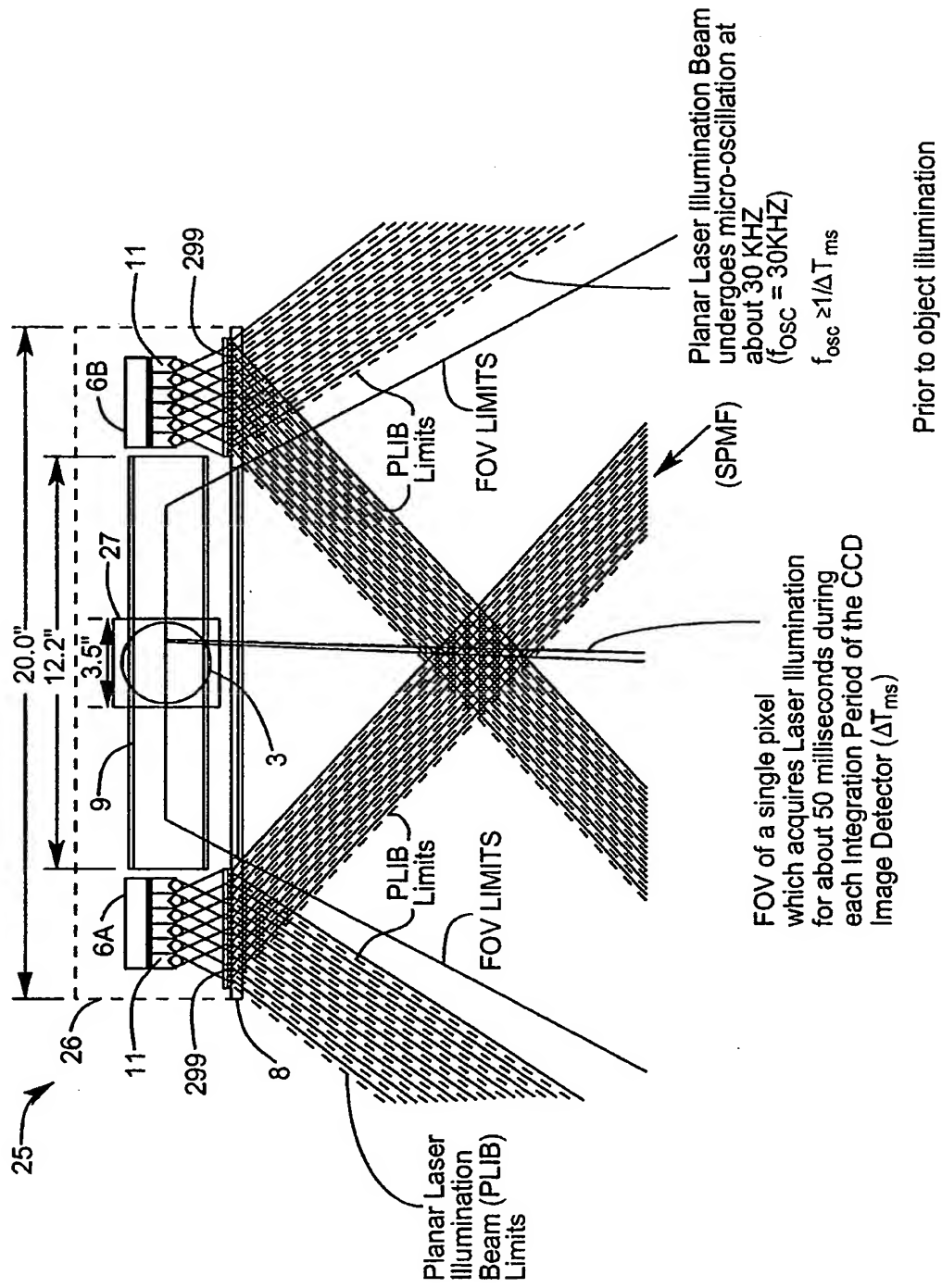


FIG. 112A

THE FIRST GENERALIZED SPECKLE-NOISE PATTERN REDUCTION
METHOD OF THE PRESENT INVENTION

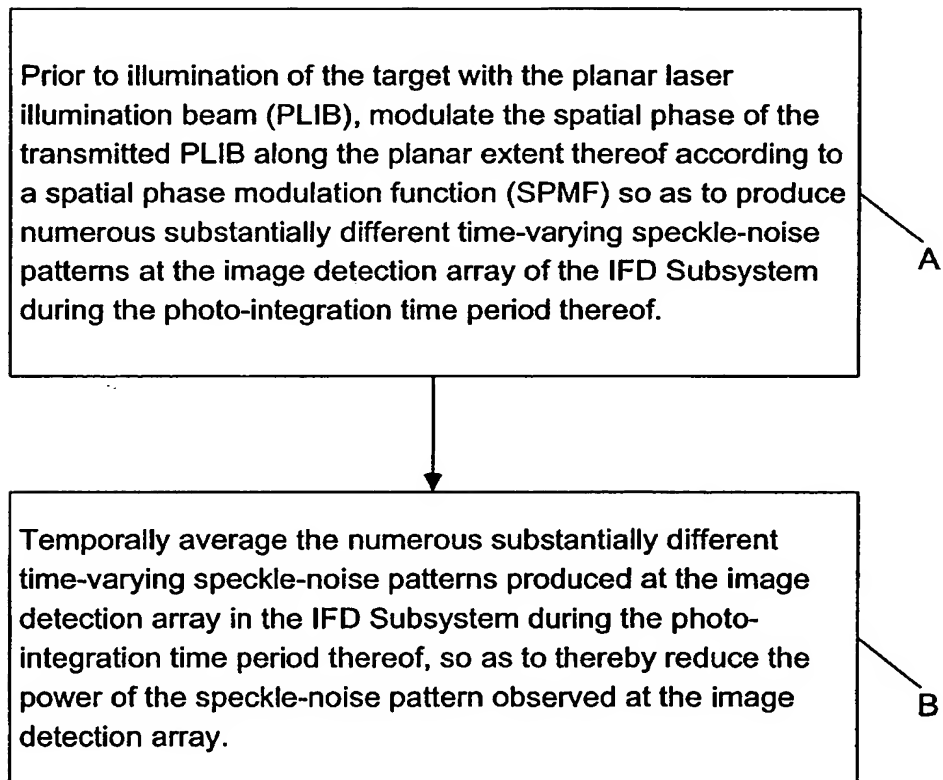
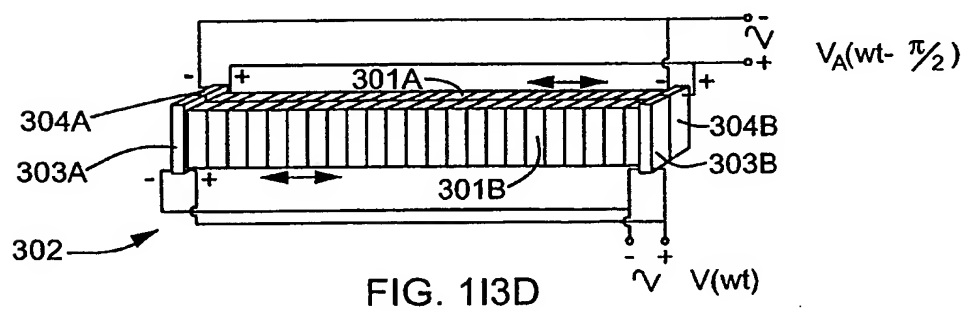
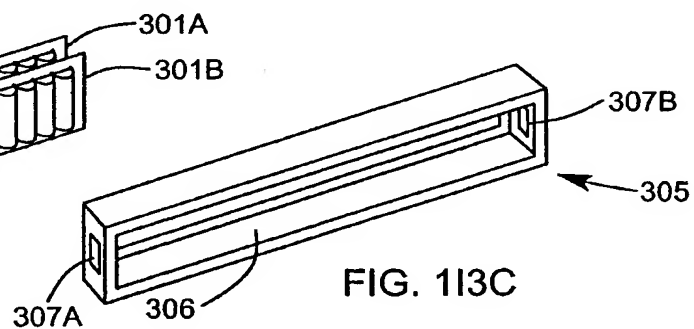
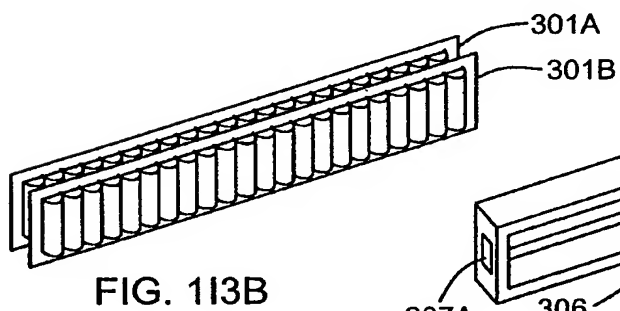
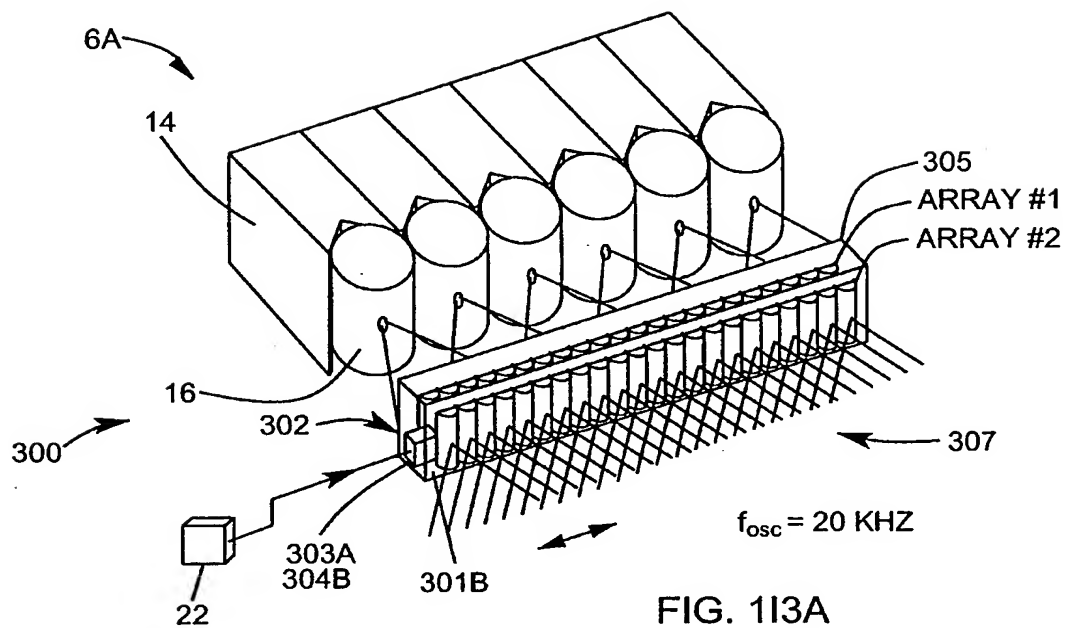
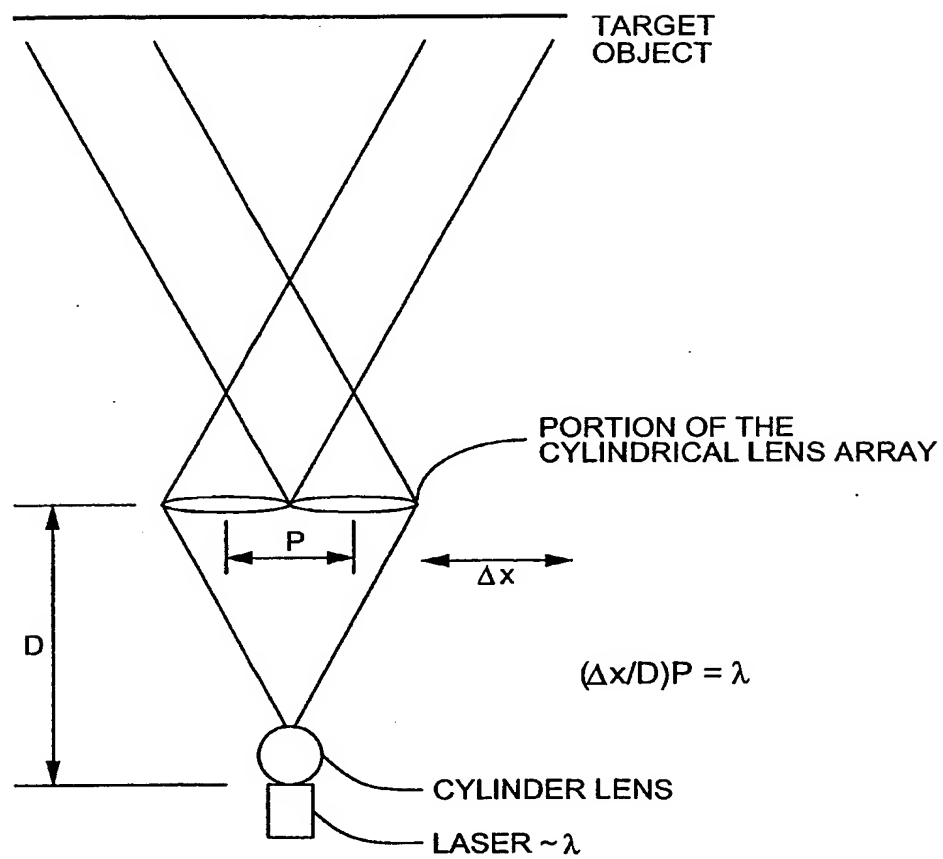


FIG. 112B





$$\Delta x \geq \frac{\lambda \cdot D}{P}$$

FIG. 1I3E

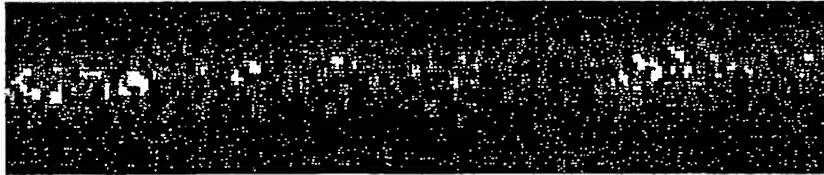


FIG. 113F

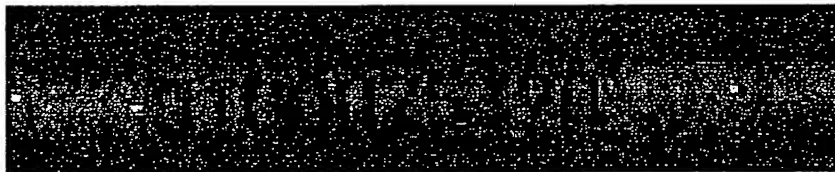
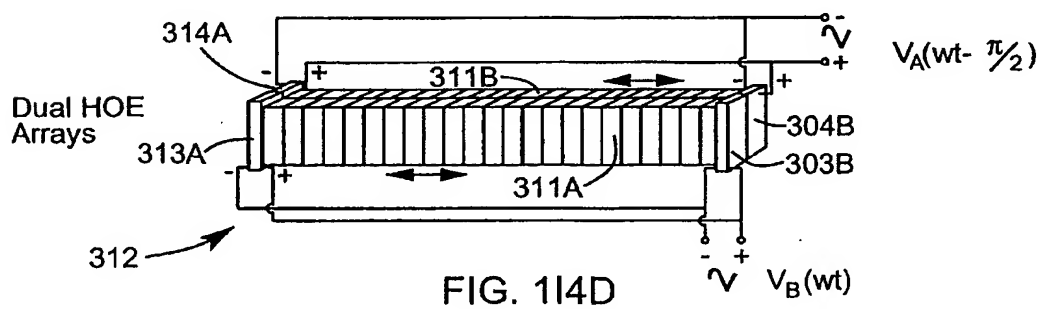
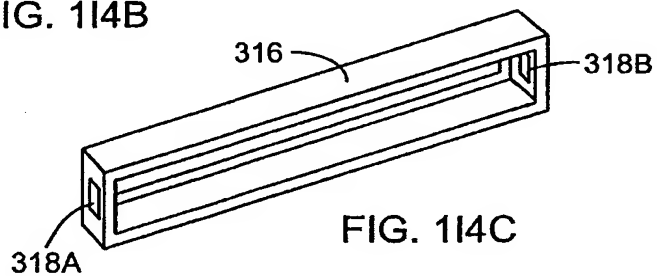
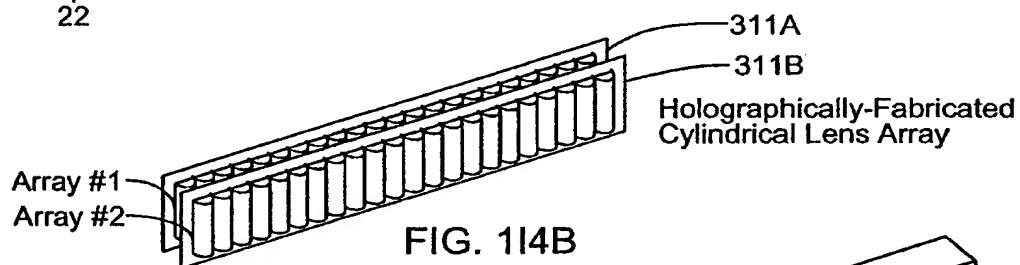
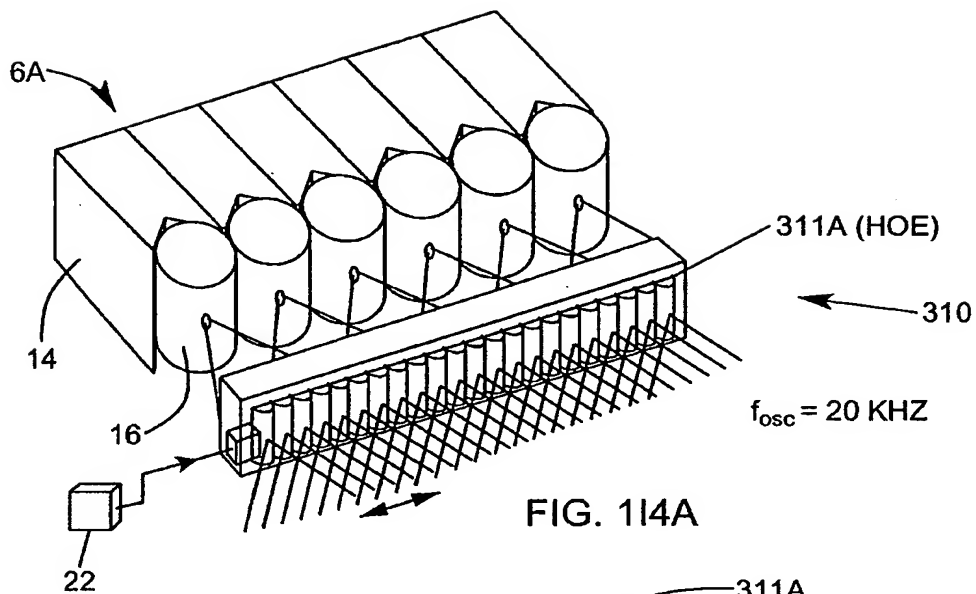
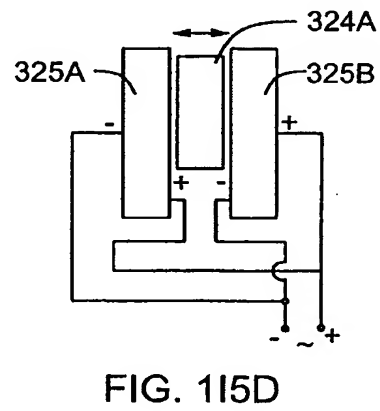
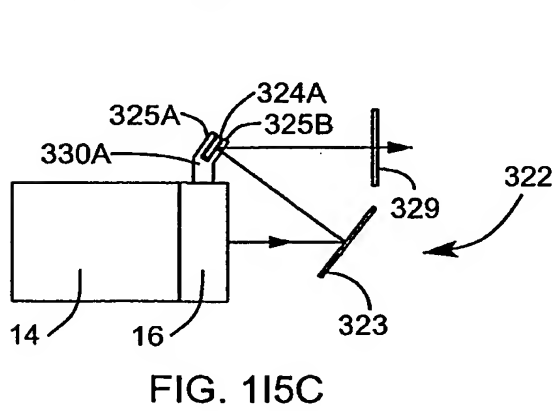
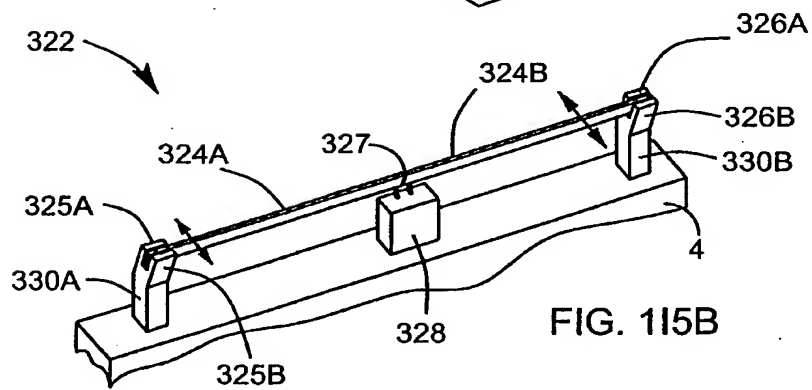
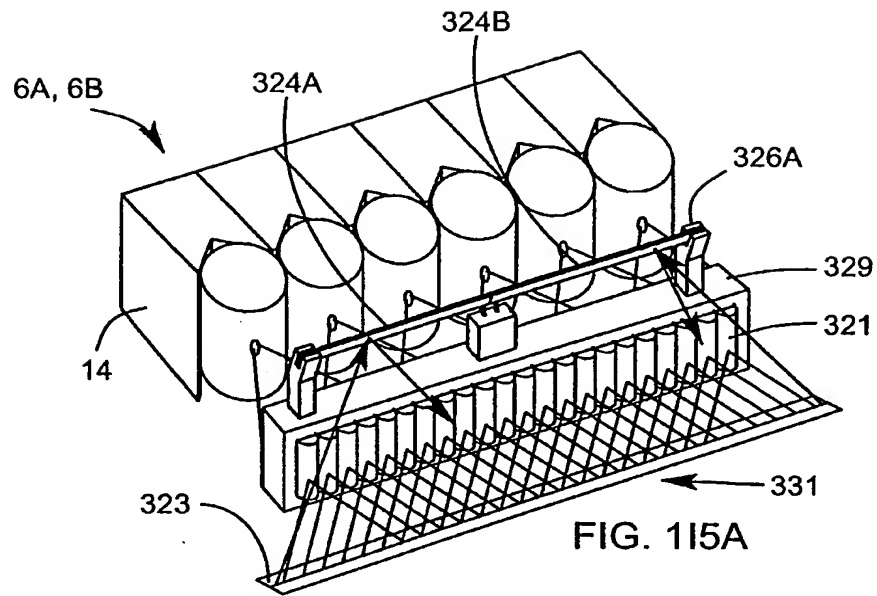


FIG. 113G





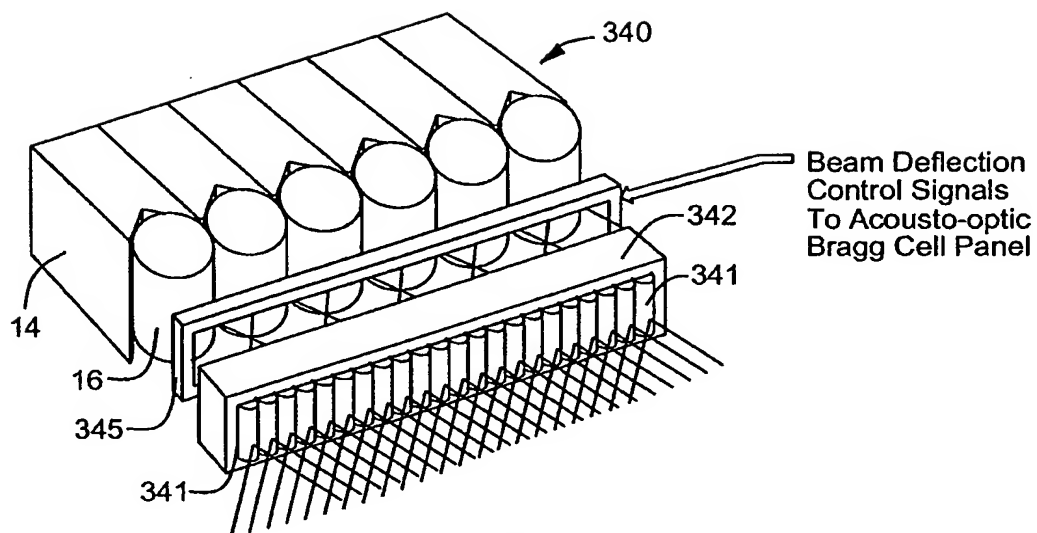


FIG. 116A

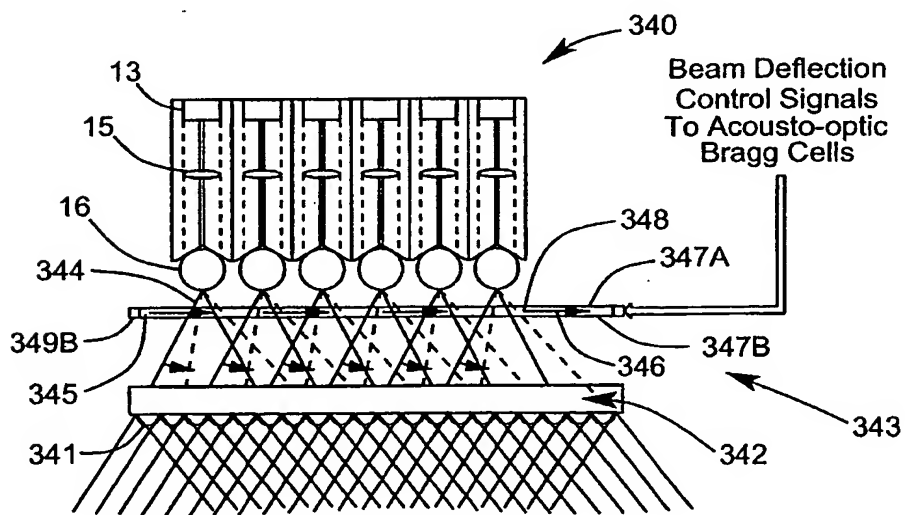
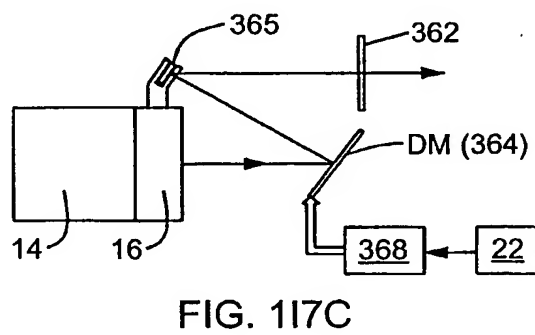
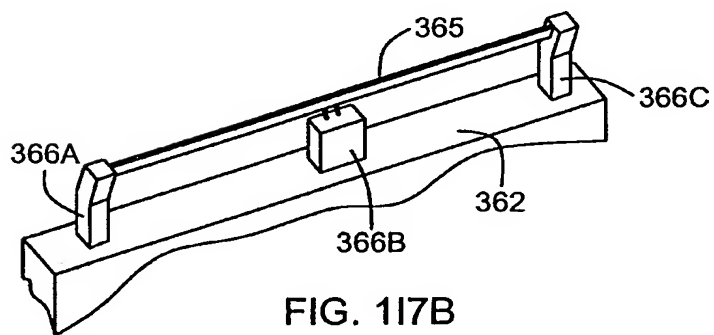
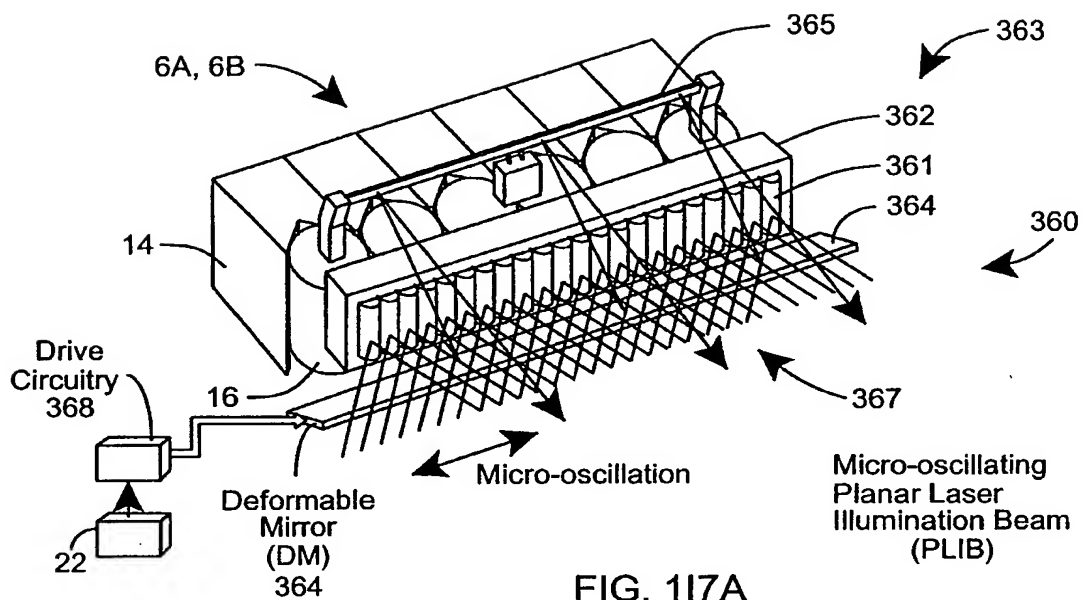


FIG. 116B



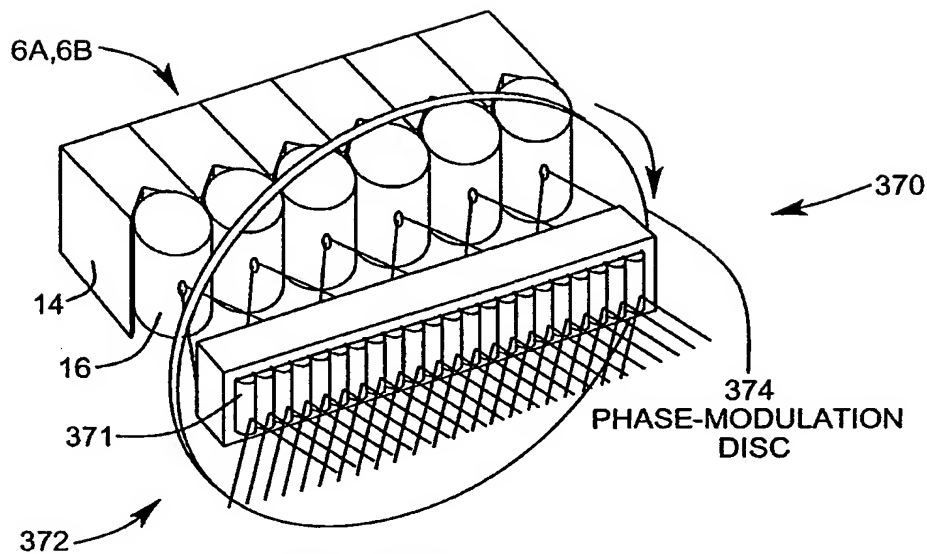


FIG. 118A

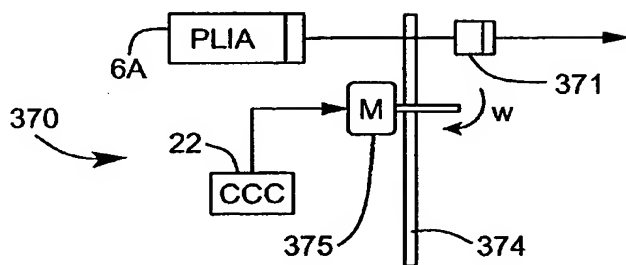


FIG. 118B

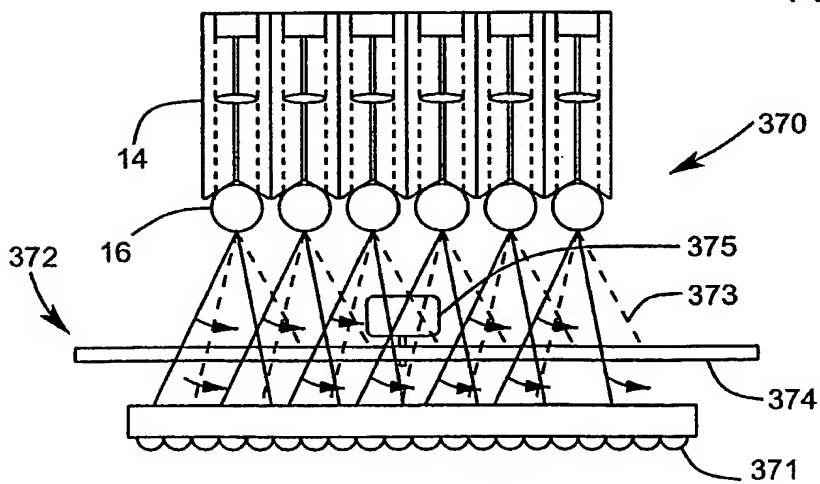


FIG. 118C

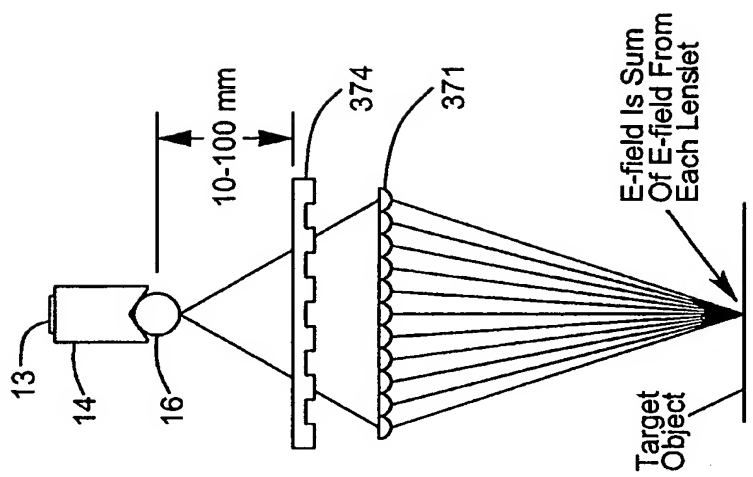


FIG. 118E

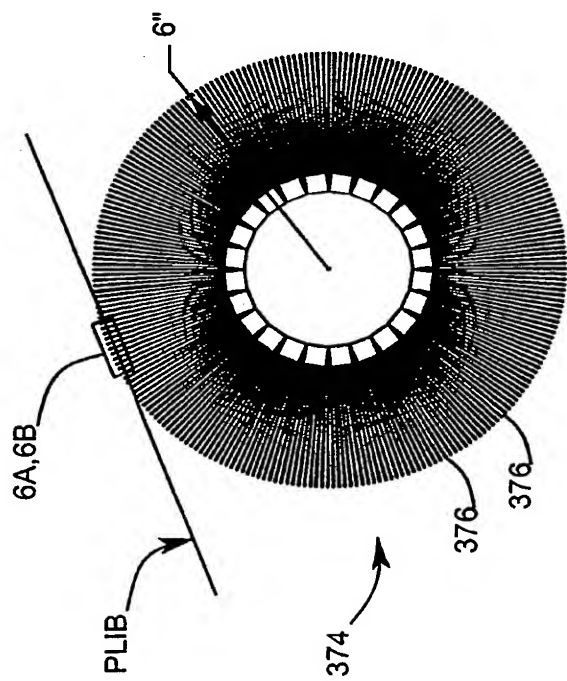


FIG. 118D

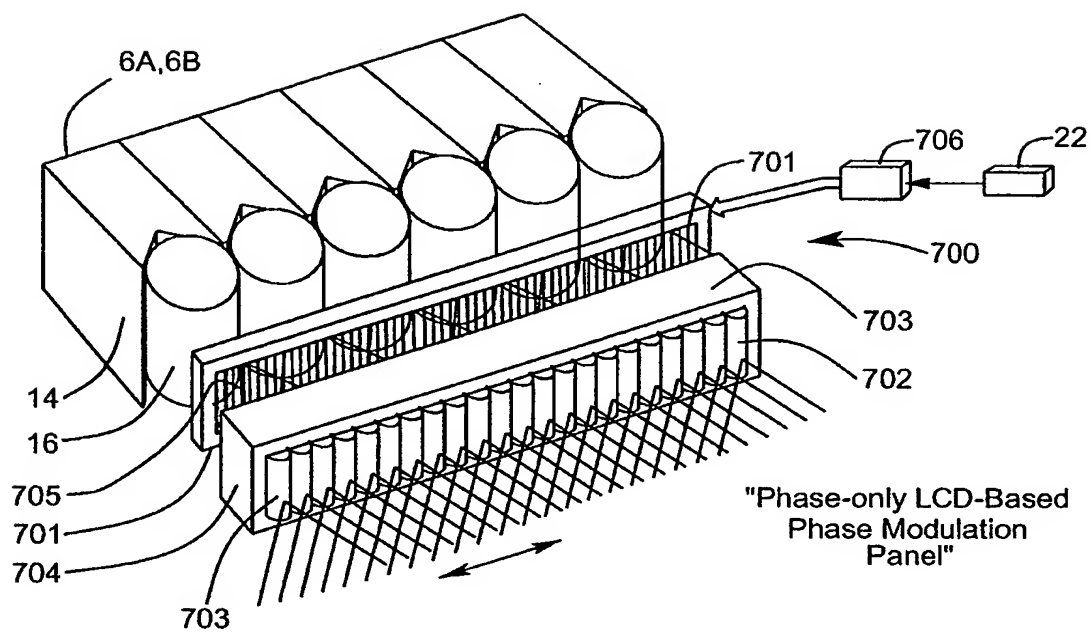


FIG. 118F

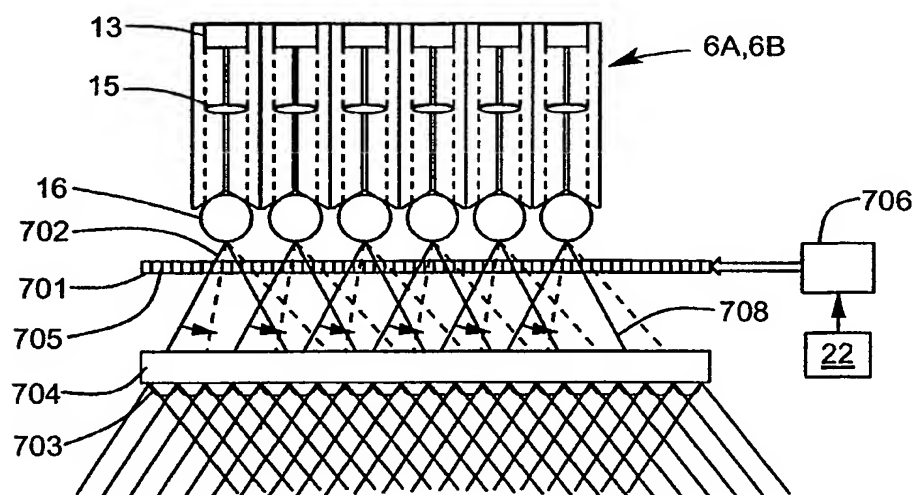


FIG. 118G

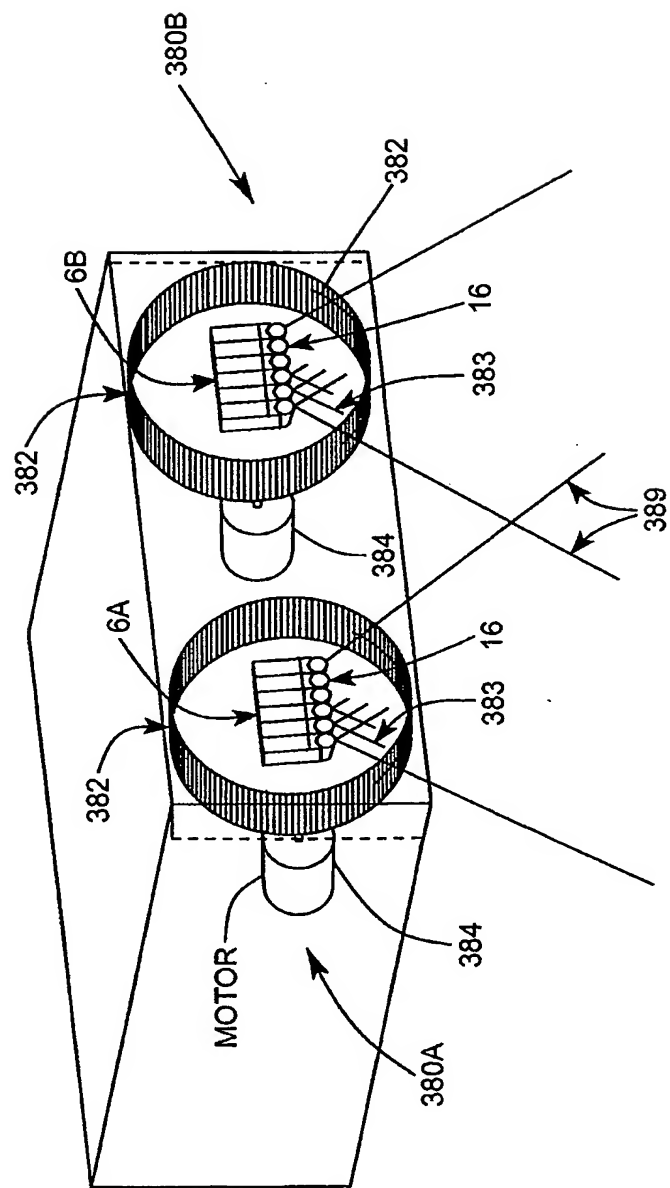
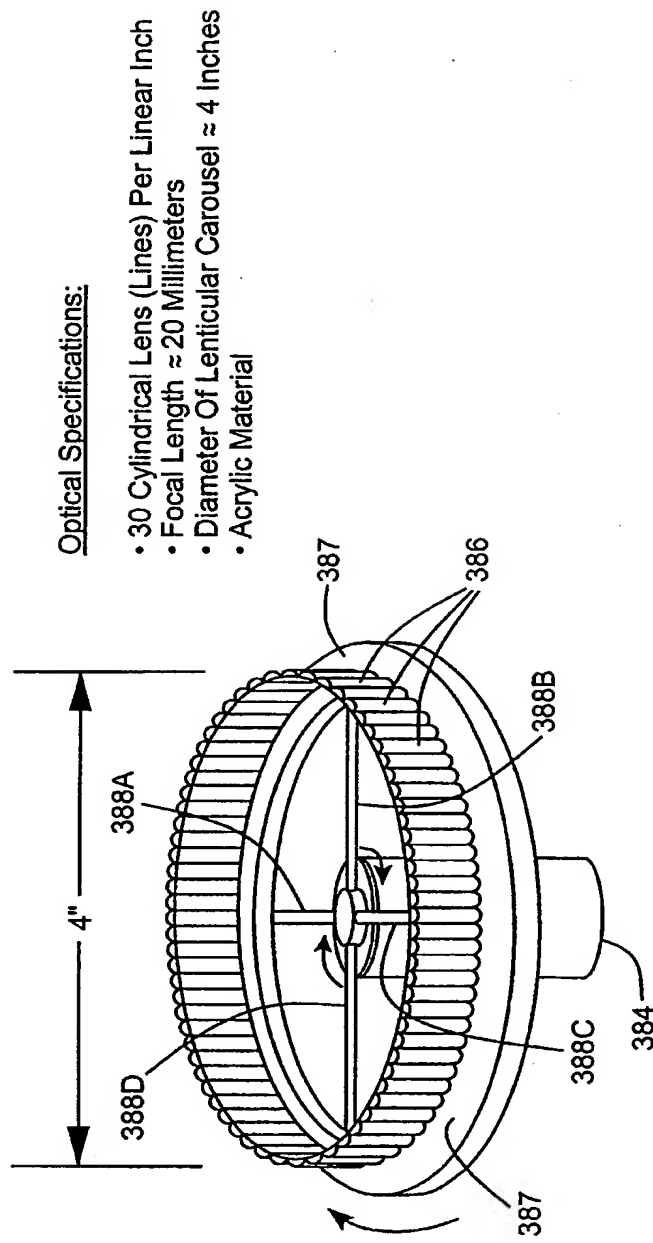


FIG. 119A



Optical Specifications:

- 30 Cylindrical Lens (Lines) Per Linear Inch
- Focal Length \approx 20 Millimeters
- Diameter Of Lenticular Carousel \approx 4 Inches
- Acrylic Material

FIG. 119B

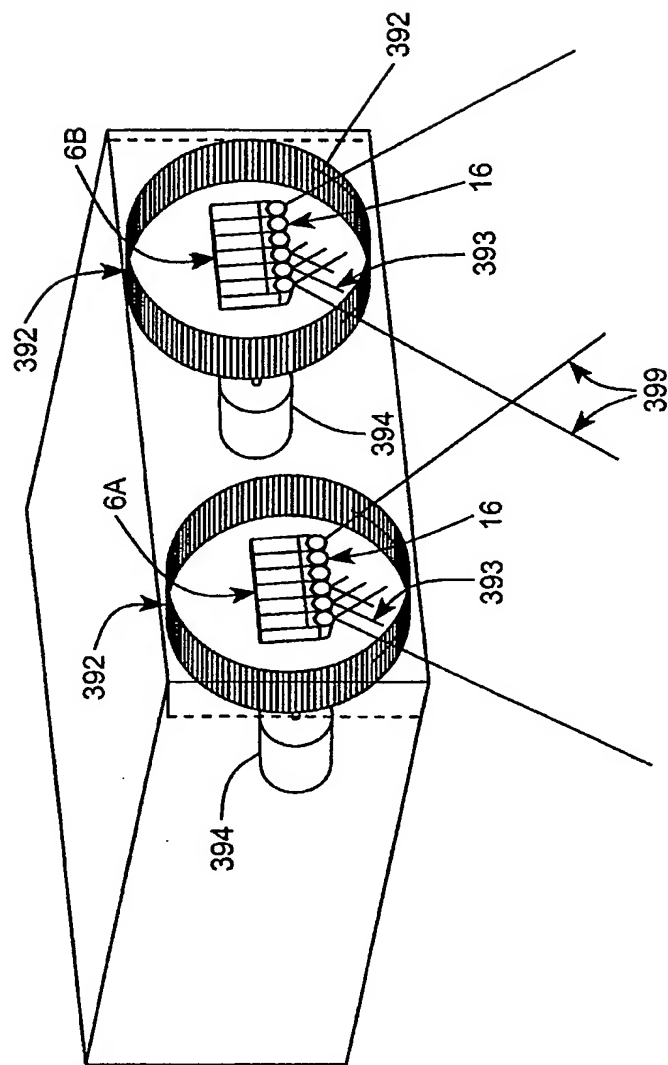


FIG. 1110A



- 30 Cylindrical Lens (Lines) Per Linear Inch
- Focal Length ≈ 20 Millimeters
- Diameter Of Lenticular Carousel ≈ 4 Inches

FIG. 110B

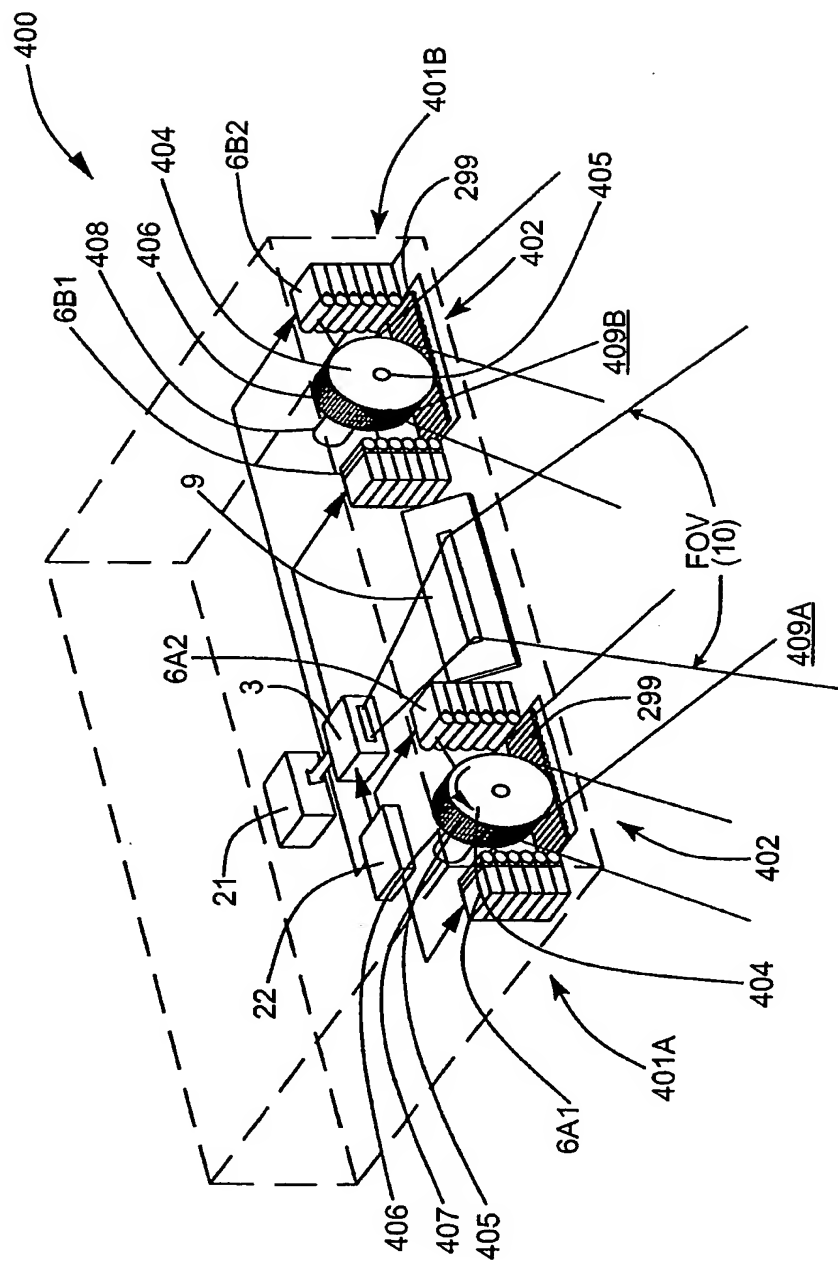


FIG. 1111A

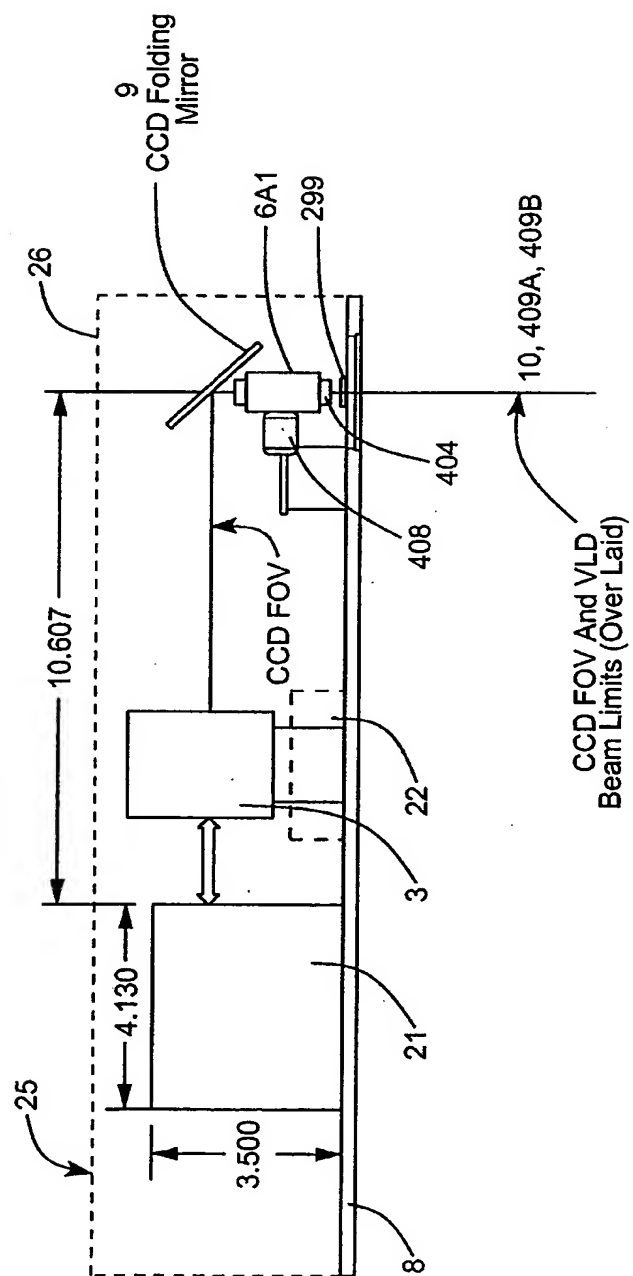


FIG. 111B

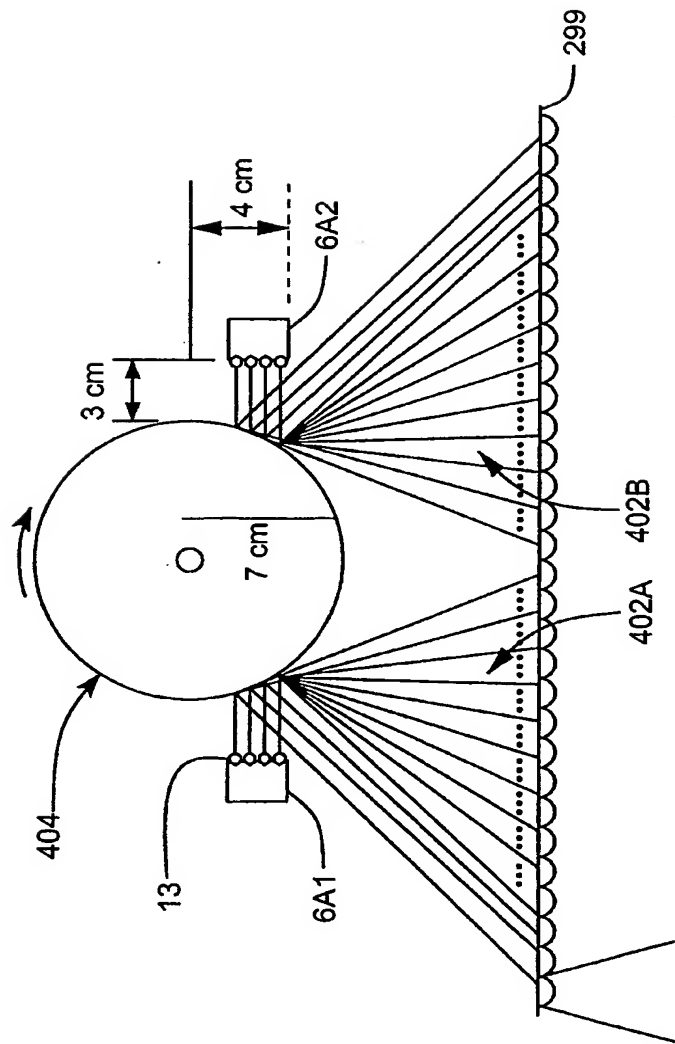


FIG. 1111C

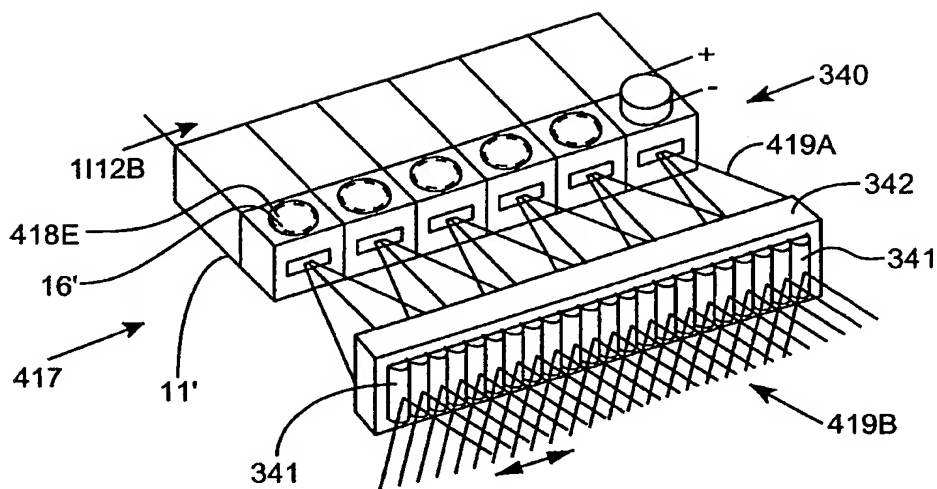


FIG. 1112A

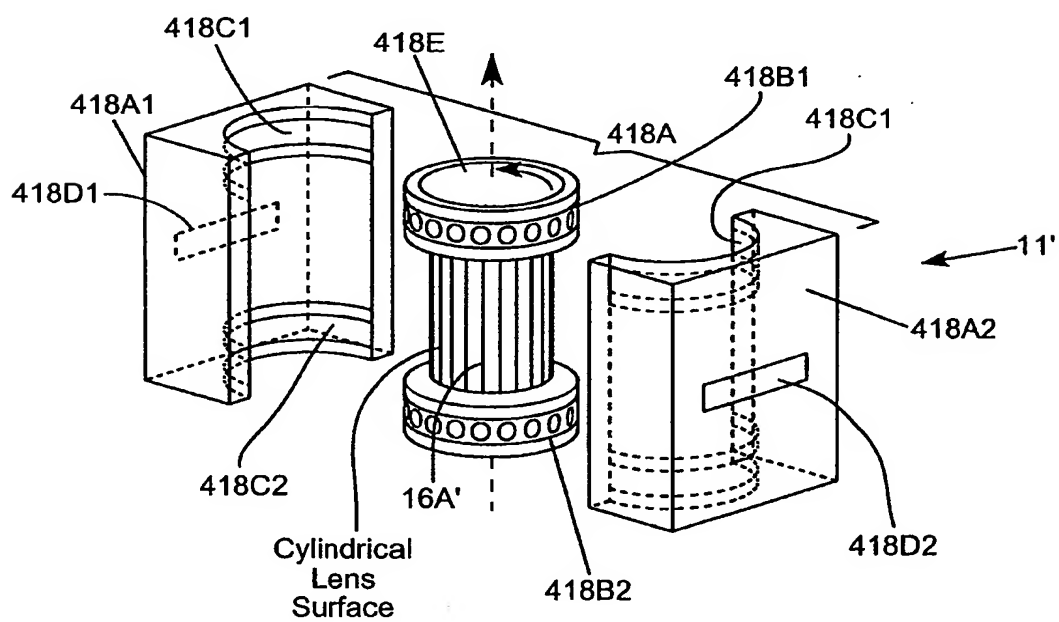


FIG. 1112B

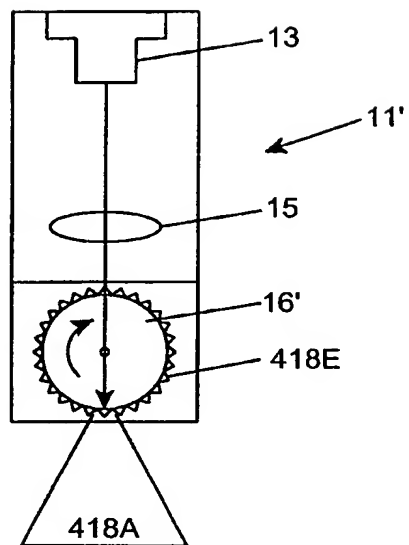


FIG. 1112C

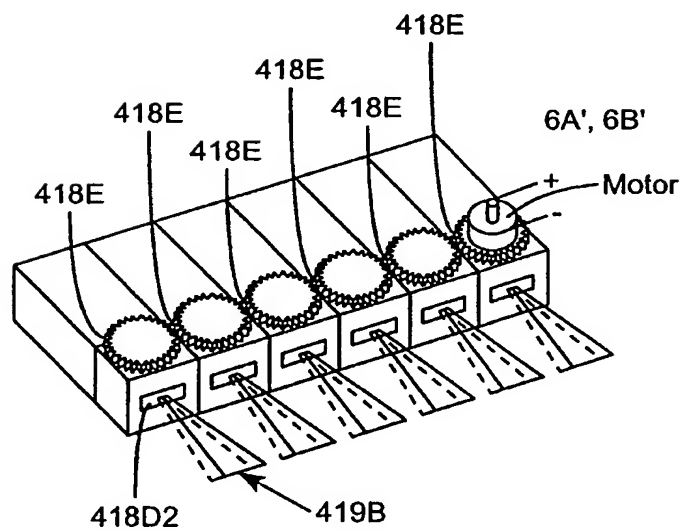


FIG. 1112D

Second Generalized Method Of
Reducing Speckle-Noise Patterns
At Image Detection Array
Of The IFD Subsystem (3)

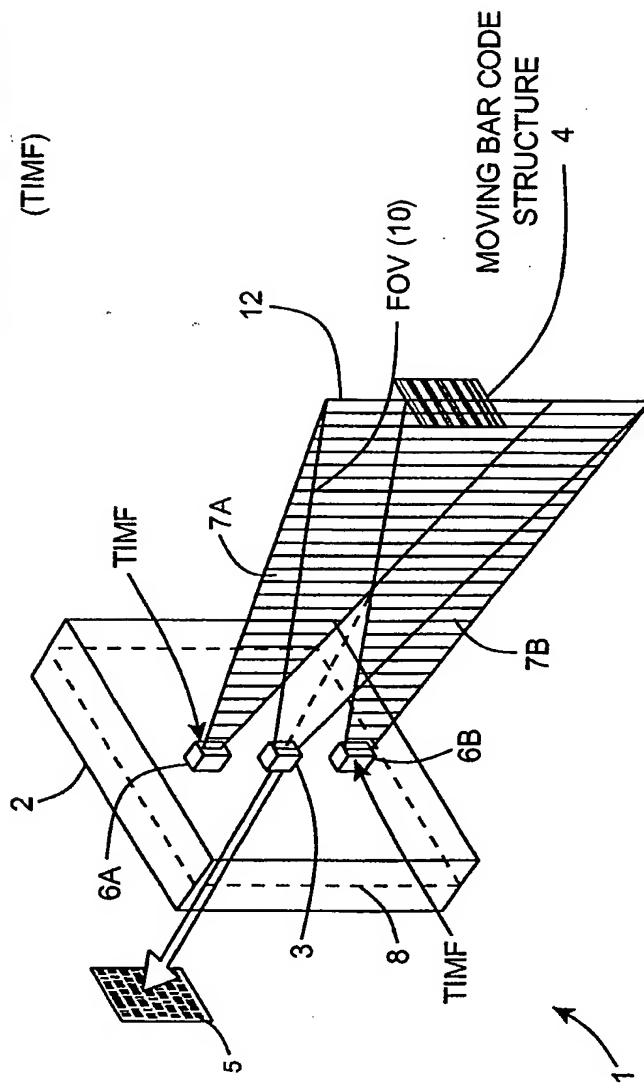


FIG. 1113

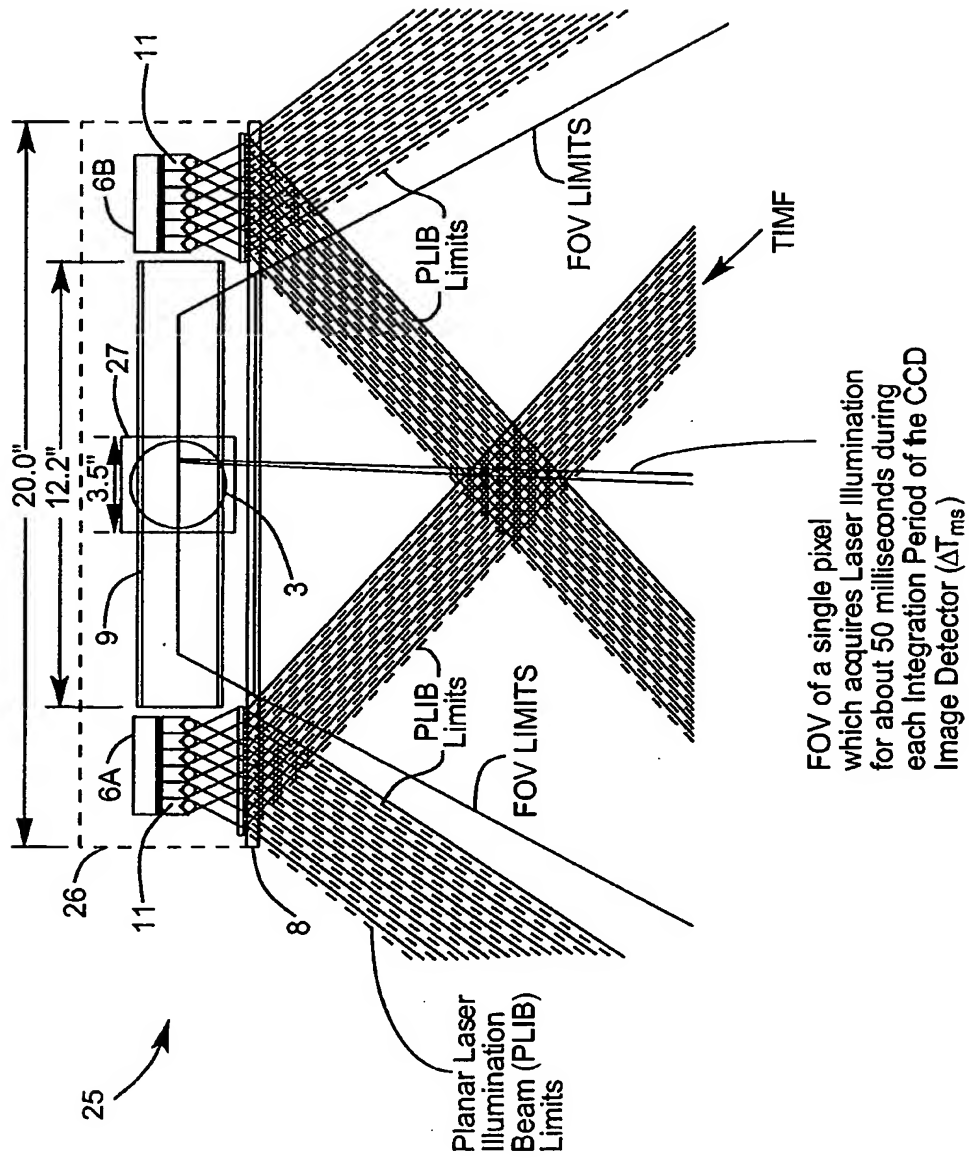


FIG. 1113A

THE SECOND GENERALIZED SPECKLE-NOISE PATTERN REDUCTION
METHOD OF THE PRESENT INVENTION

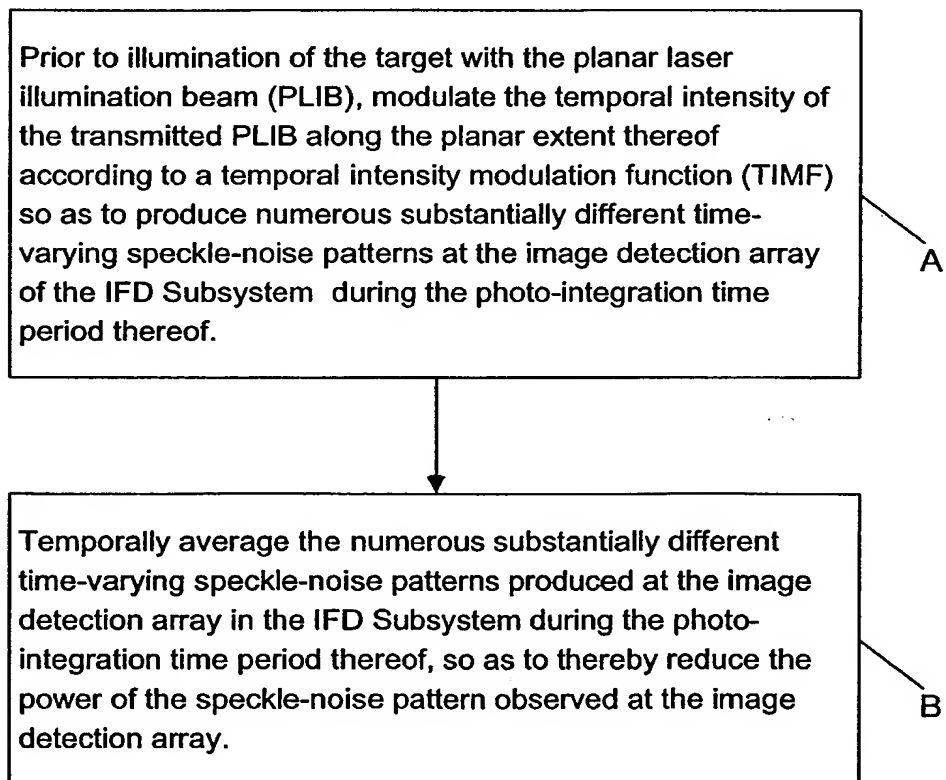


FIG. 1113B

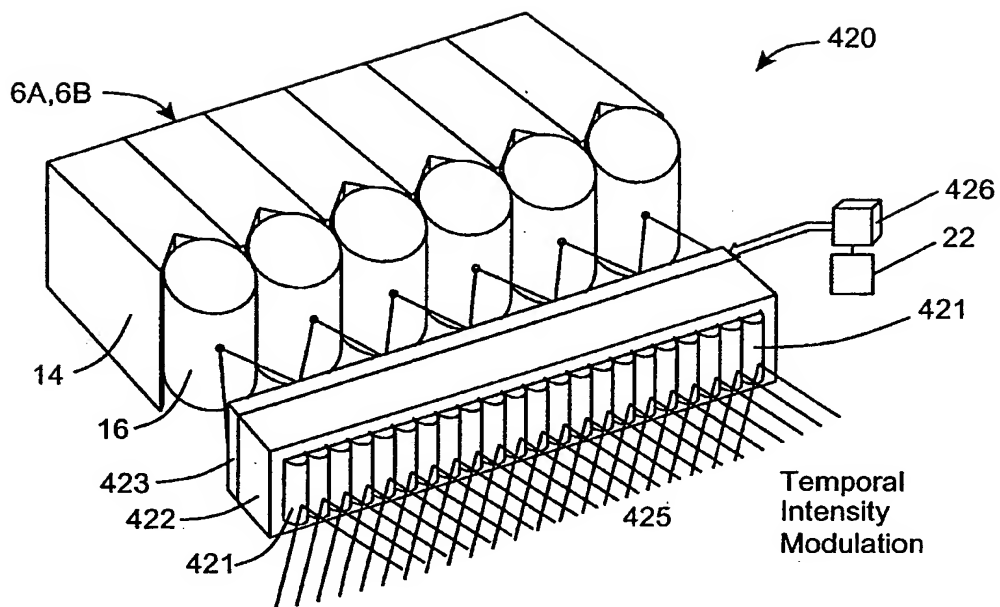


FIG. 1114A

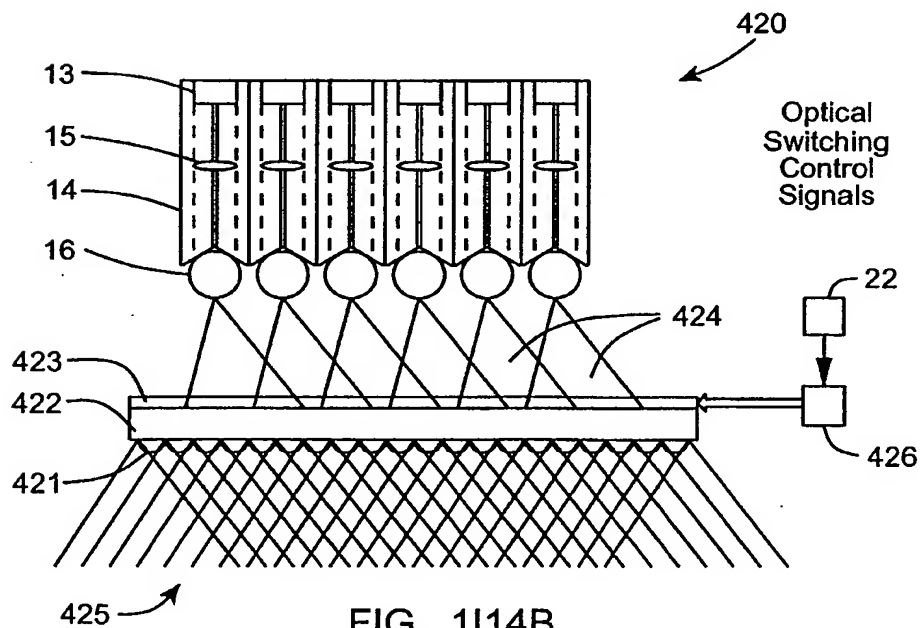


FIG. 1114B

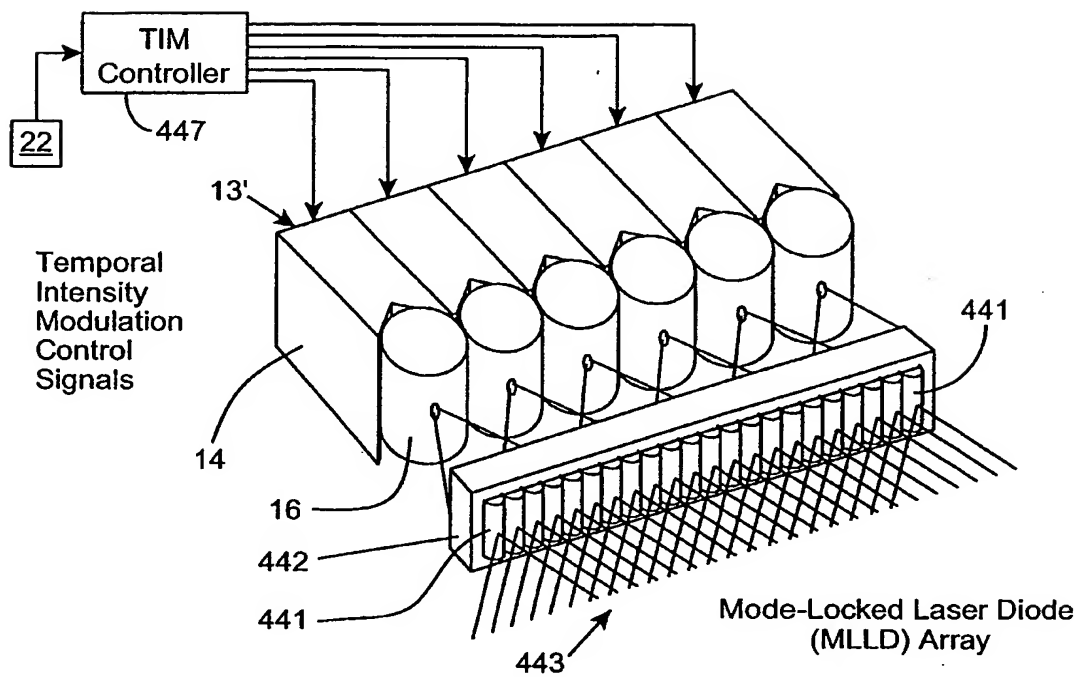


FIG. 1115A

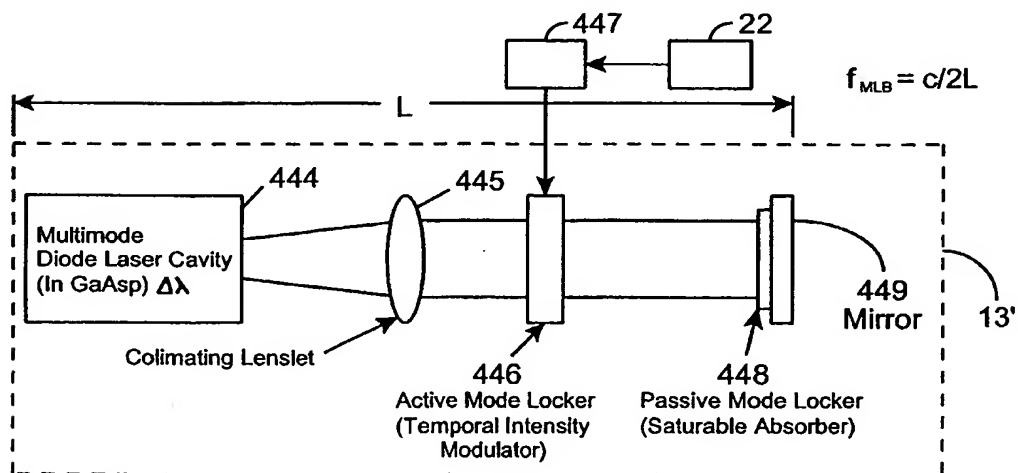


FIG. 1115B

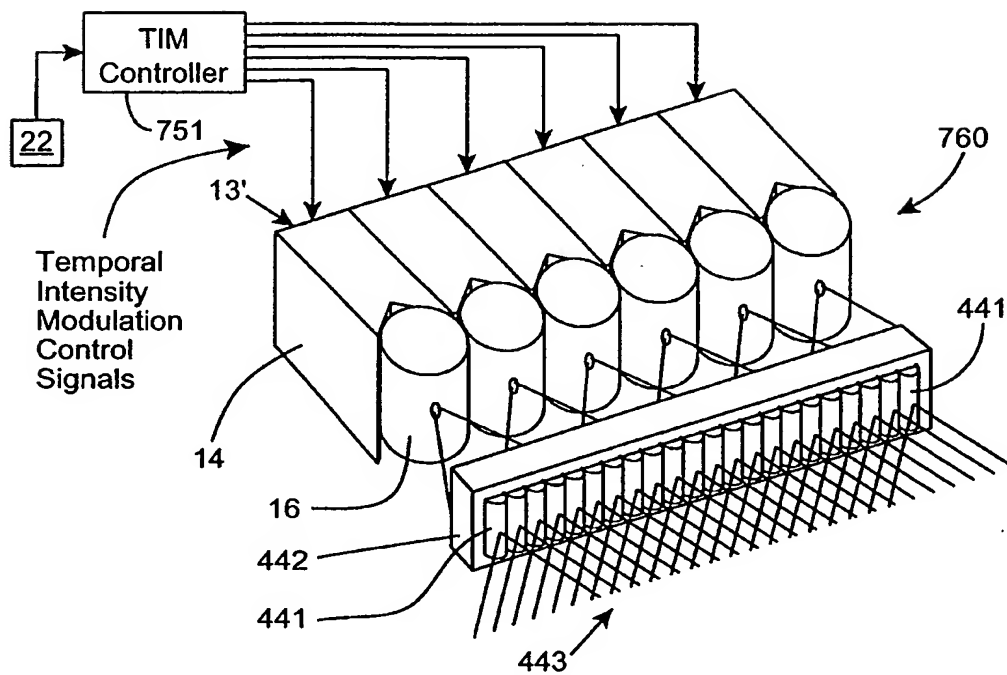


FIG. 1115C

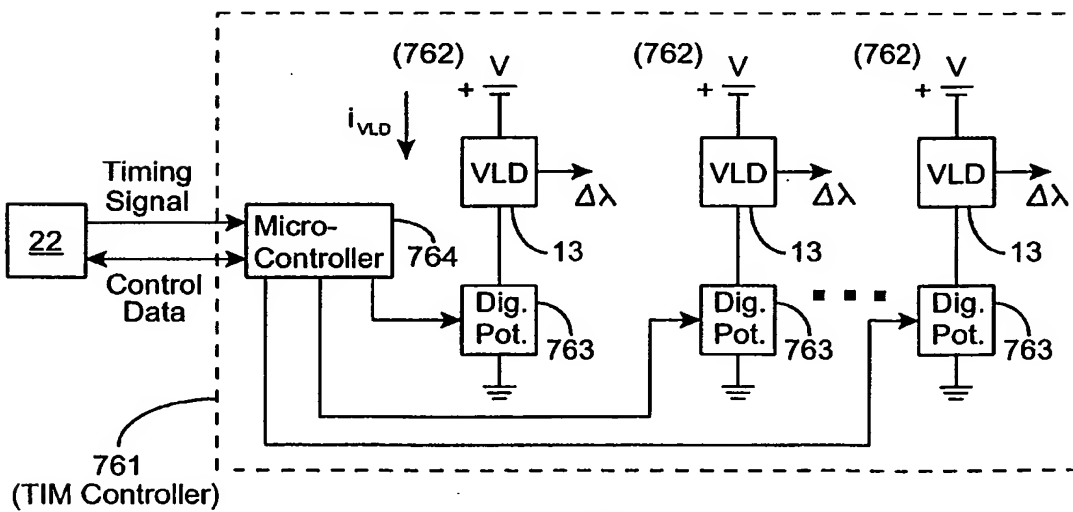


FIG. 1115D

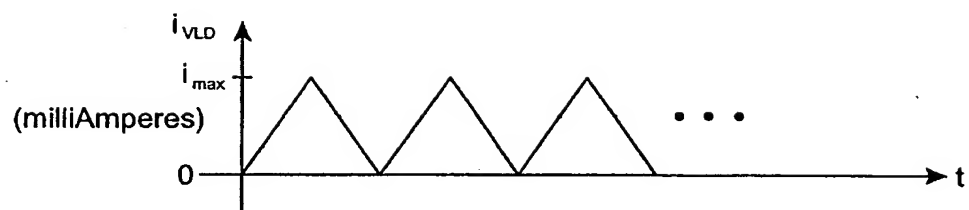


FIG. 1I15E

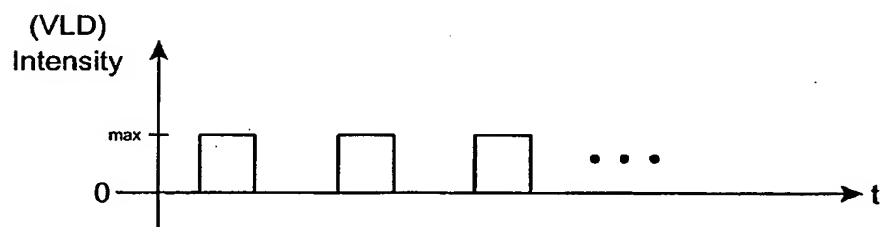


FIG. 1I15F

Third Generalized Method Of
Reducing Speckle-Noise Patterns
At Image Detection Array
Of The IFD Subsystem (3)

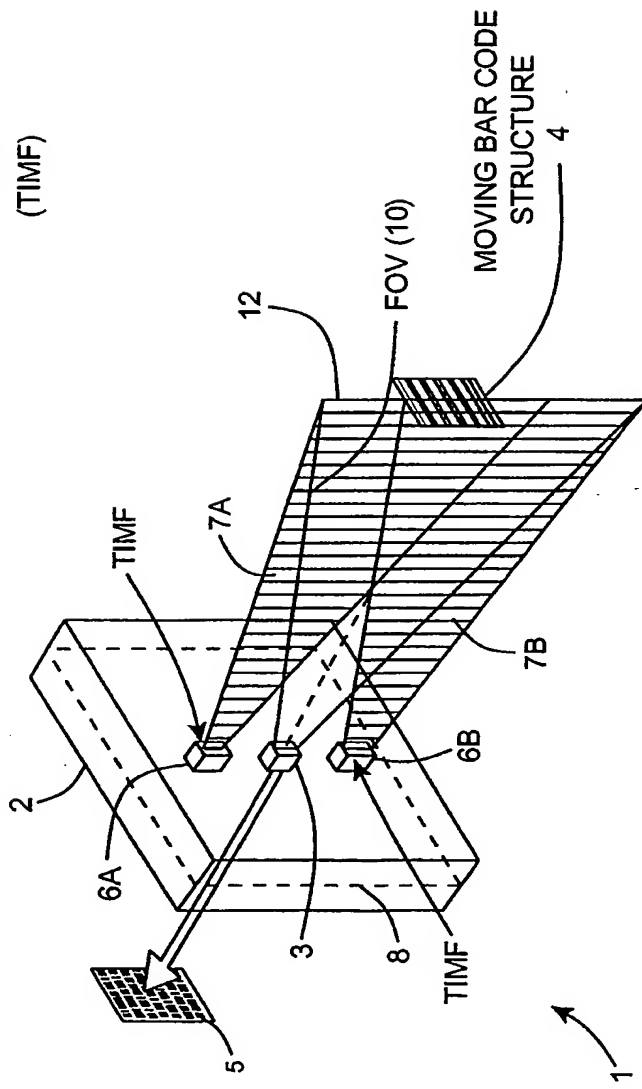


FIG. 1116

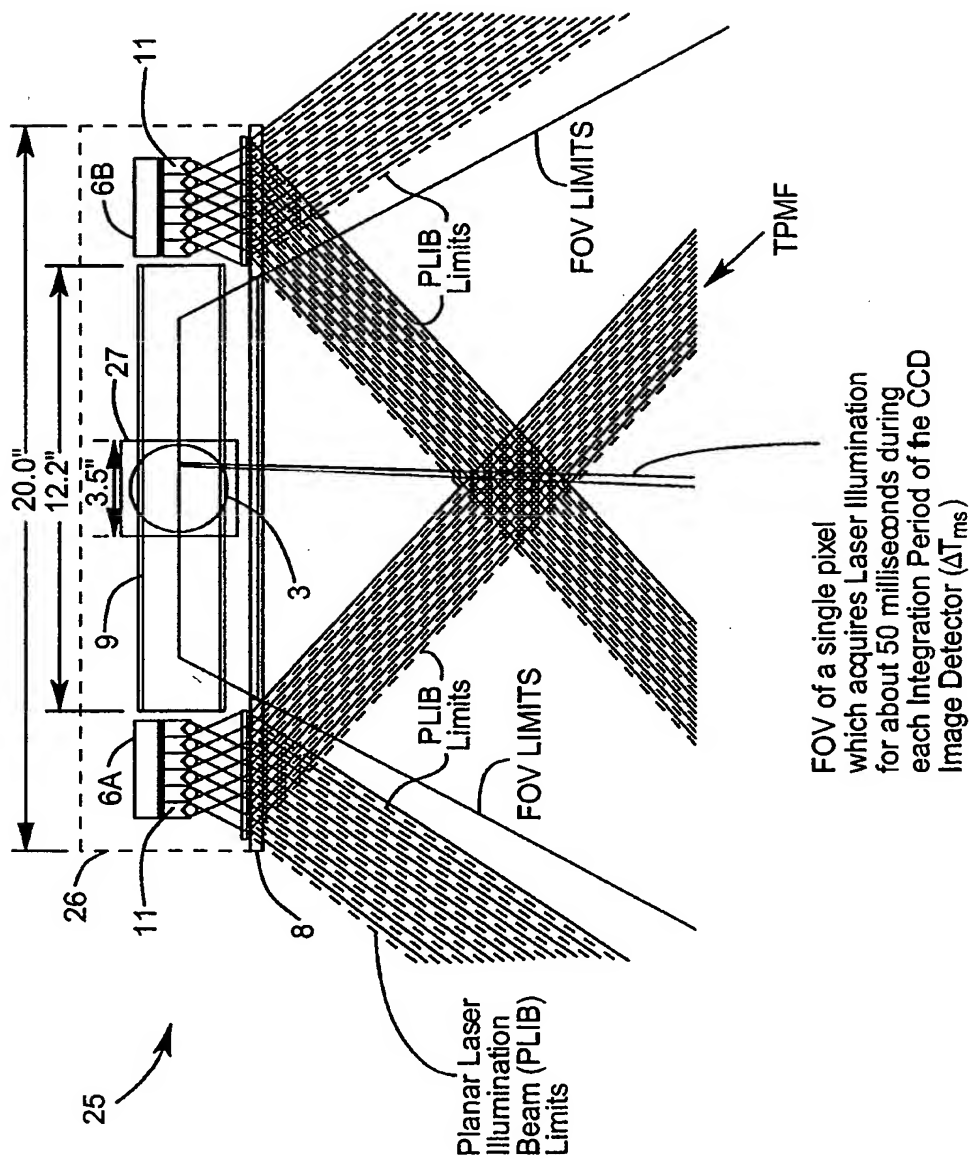


FIG. 1116A

THE THIRD GENERALIZED SPECKLE-NOISE PATTERN REDUCTION
METHOD OF THE PRESENT INVENTION

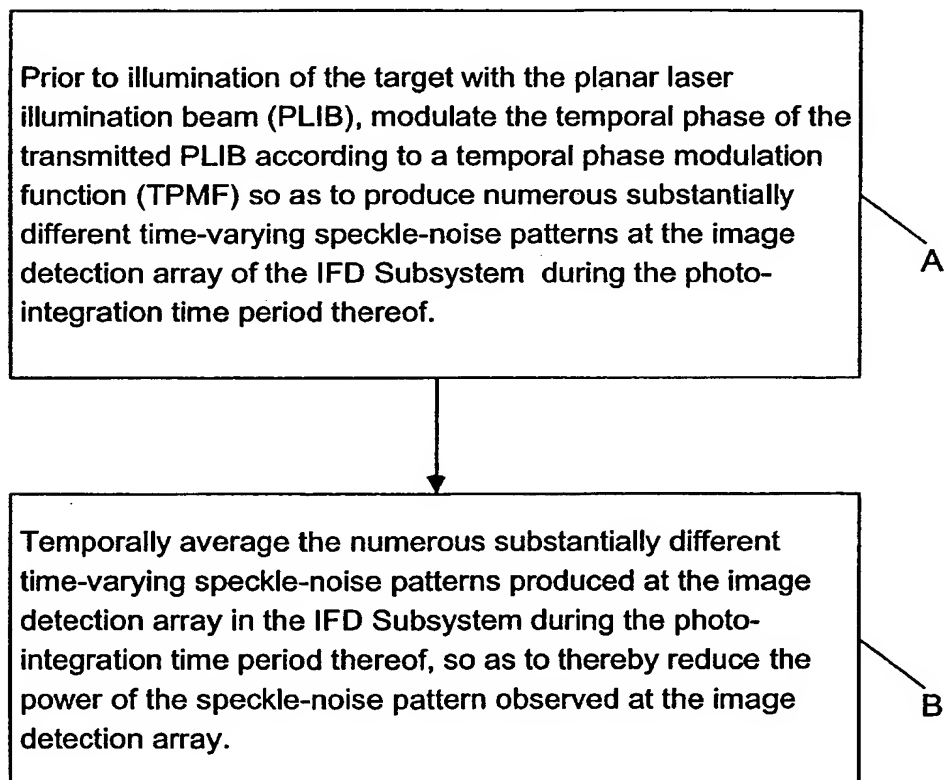


FIG. 1116B

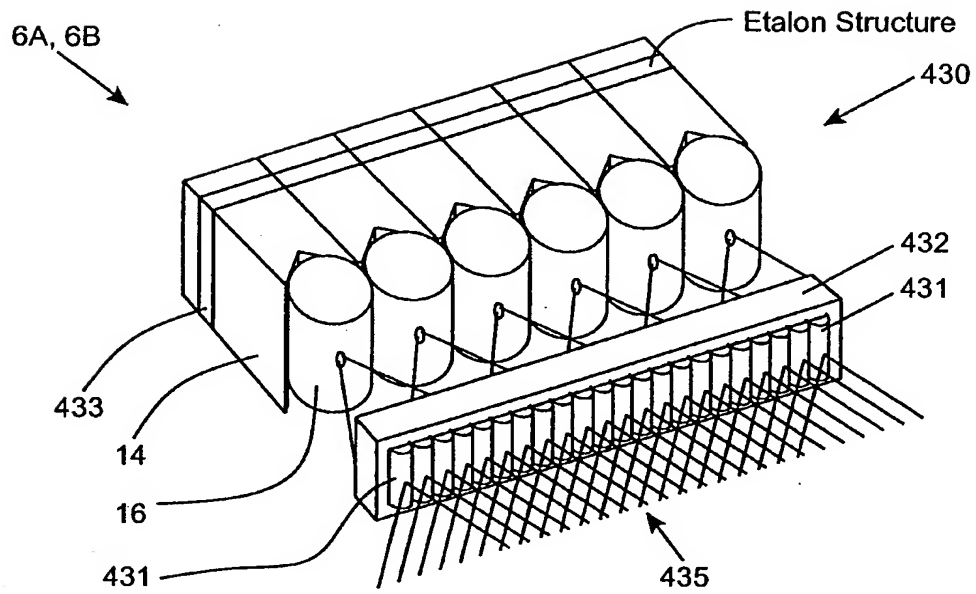


FIG. 1117A

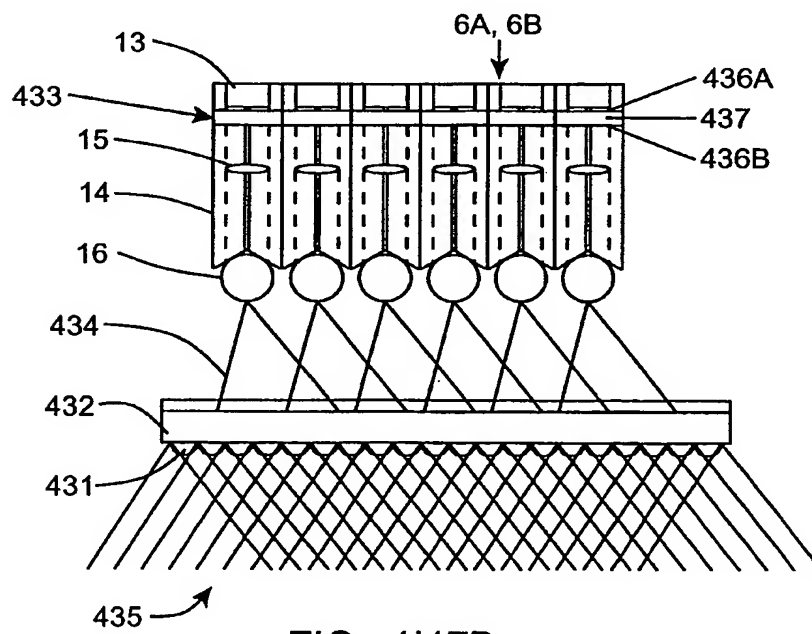


FIG. 1117B

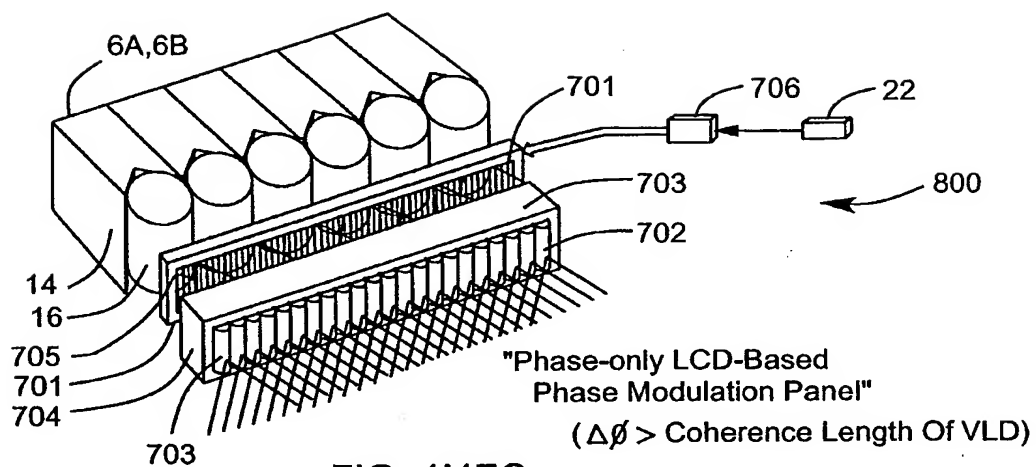


FIG. 1117C

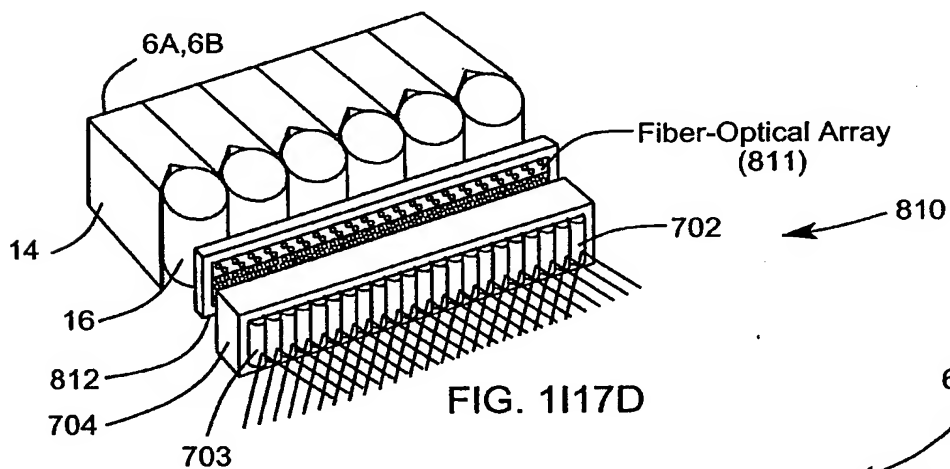


FIG. 1117D

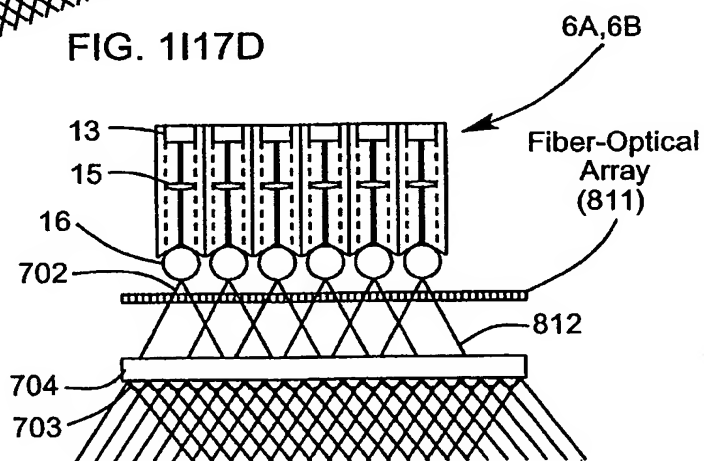


FIG. 1117E

Fourth Generalized Method Of
Reducing Speckle-Noise Patterns
At Image Detection Array
Of The IFD Subsystem (3)
(TFMF)

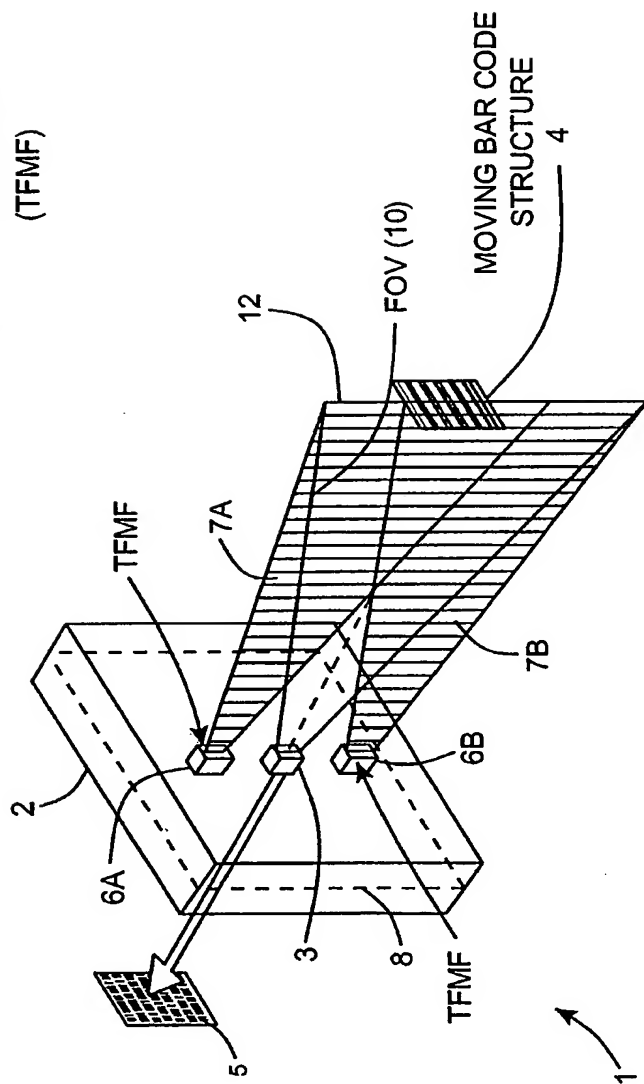


FIG. 1118

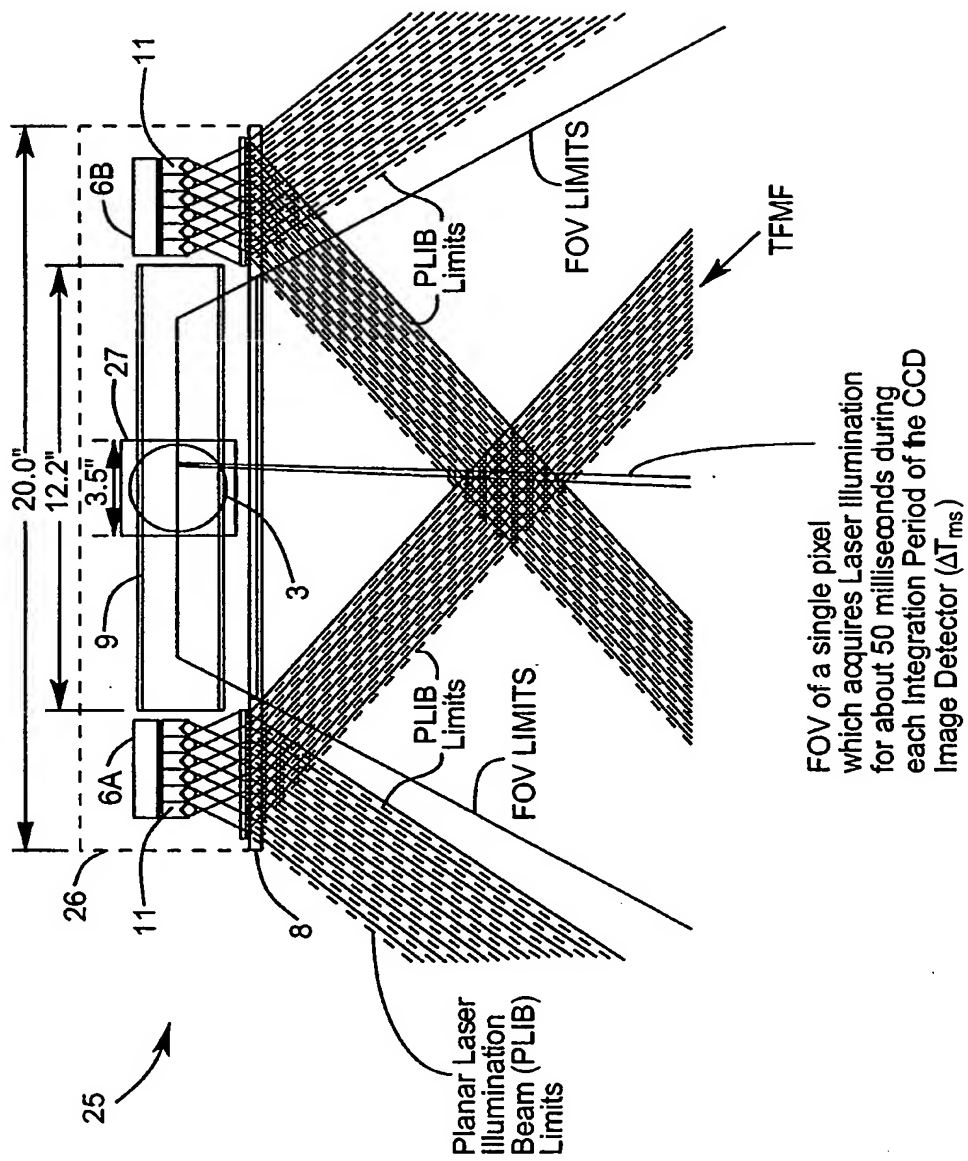


FIG. 1118A

THE FOURTH GENERALIZED SPECKLE-NOISE PATTERN REDUCTION
METHOD OF THE PRESENT INVENTION

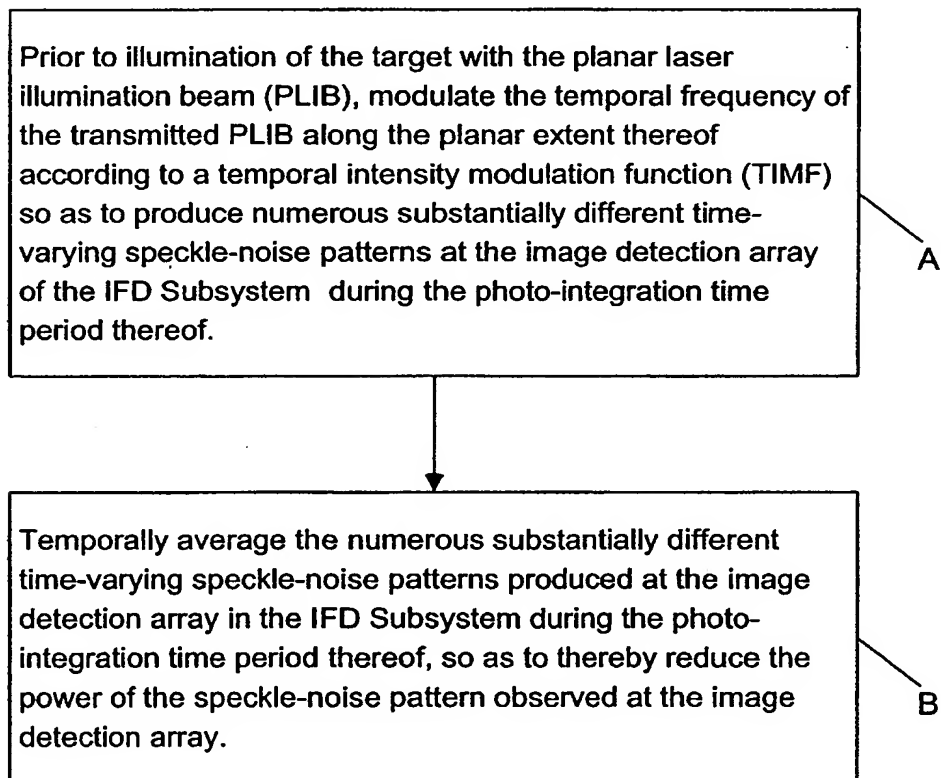


FIG. 1118B

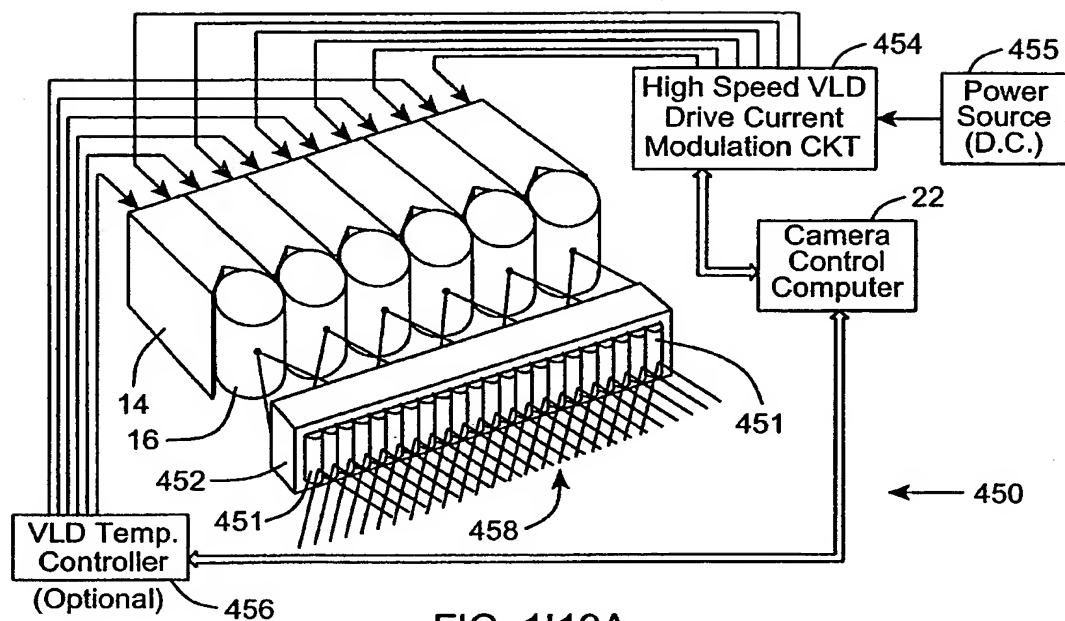


FIG. 1119A

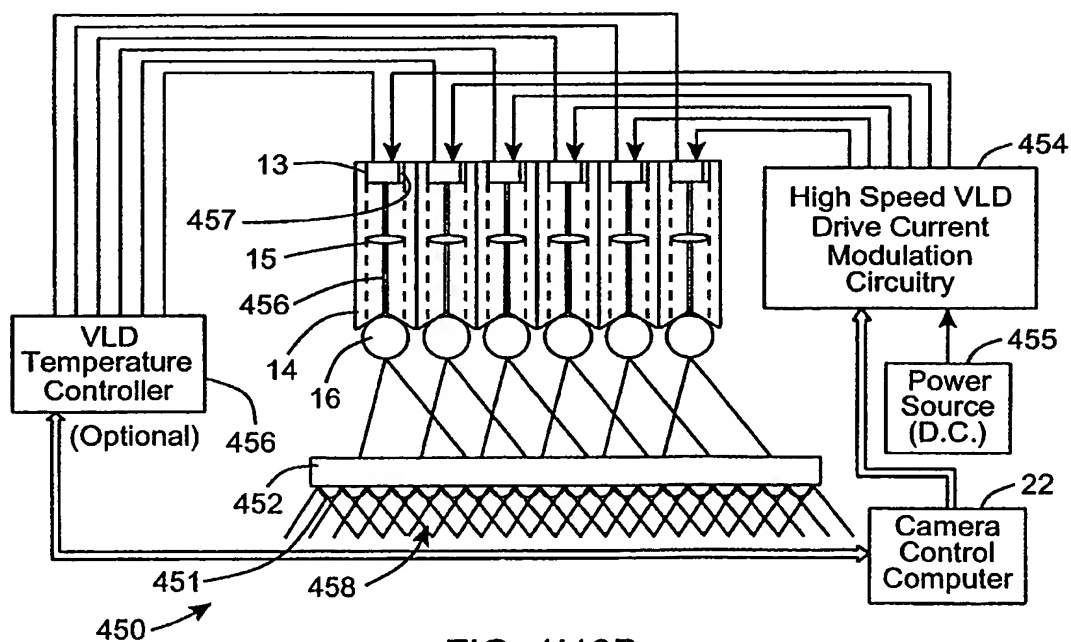


FIG. 1119B

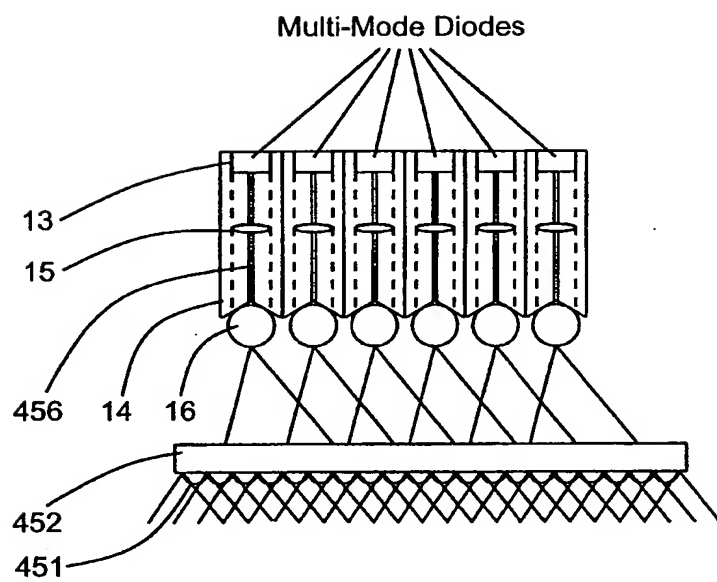


FIG. 1119C

Fifth Generalized Method Of
Reducing Speckle-Noise Patterns
At Image Detection Array
Of The IFD Subsystem (3)

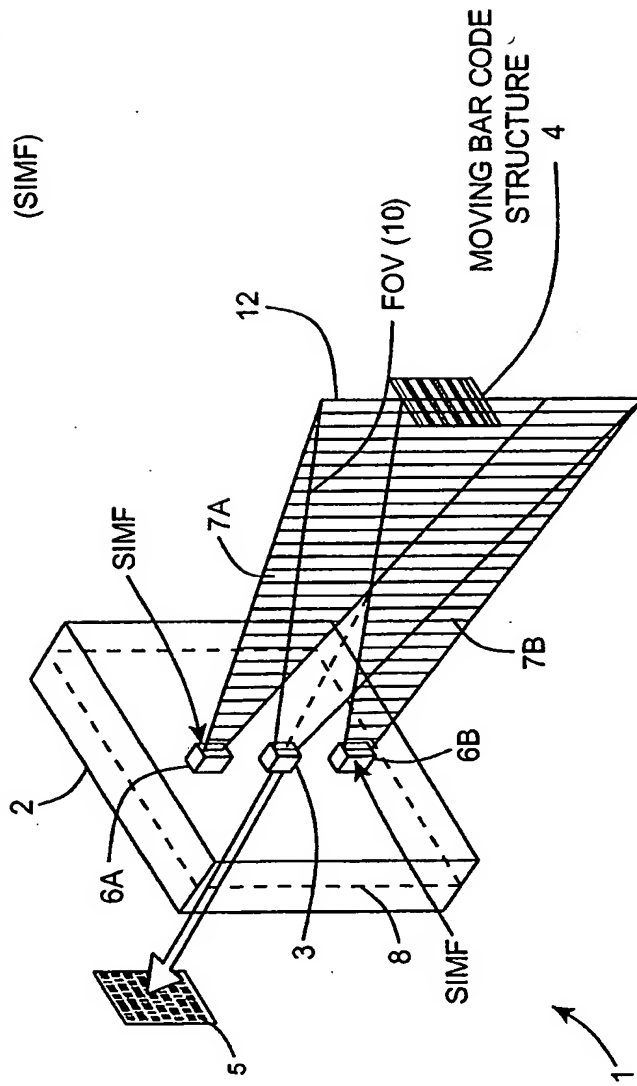


FIG. 1120

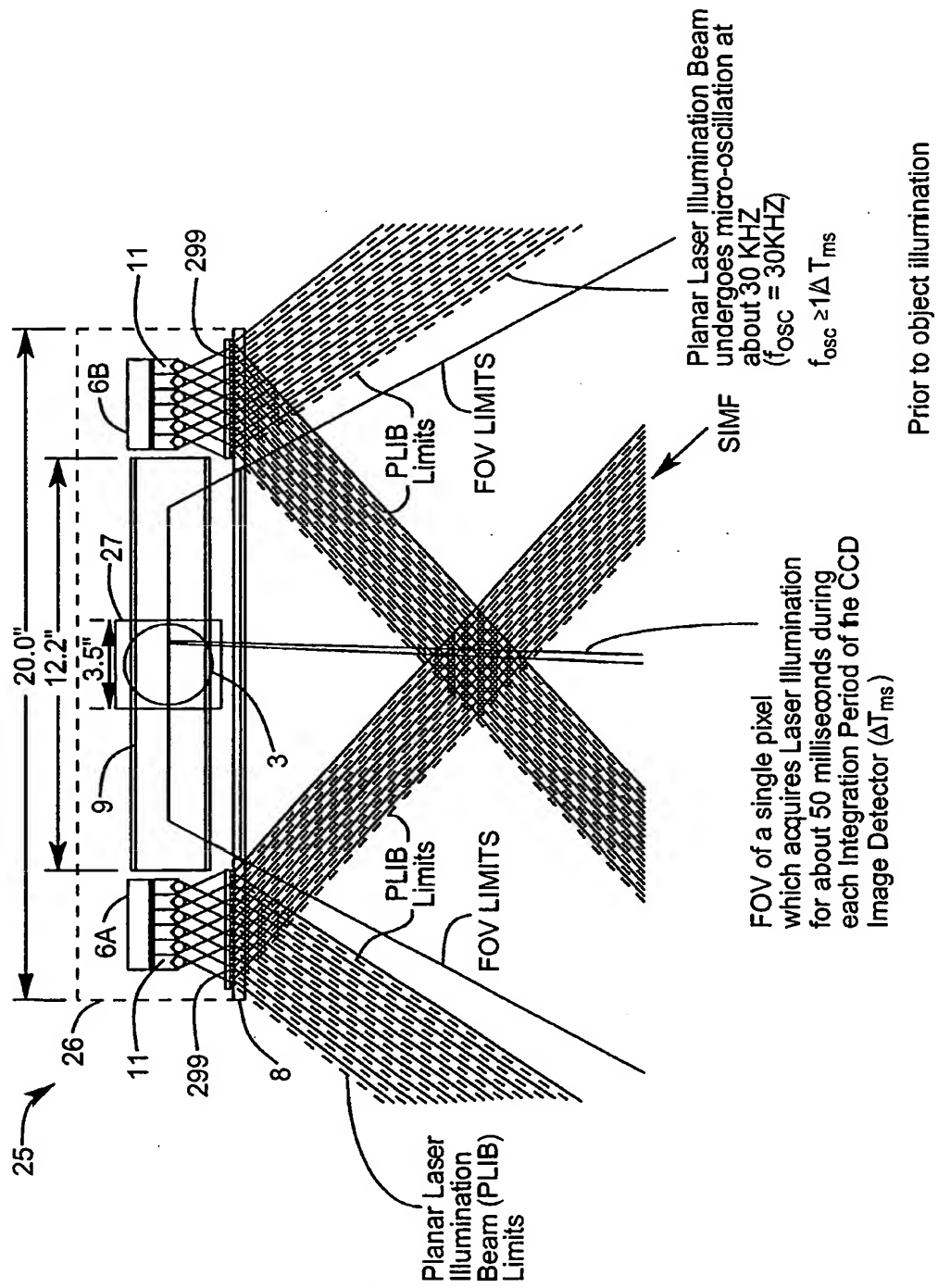


FIG. 1120A

THE FIFTH GENERALIZED SPECKLE-NOISE PATTERN REDUCTION
METHOD OF THE PRESENT INVENTION

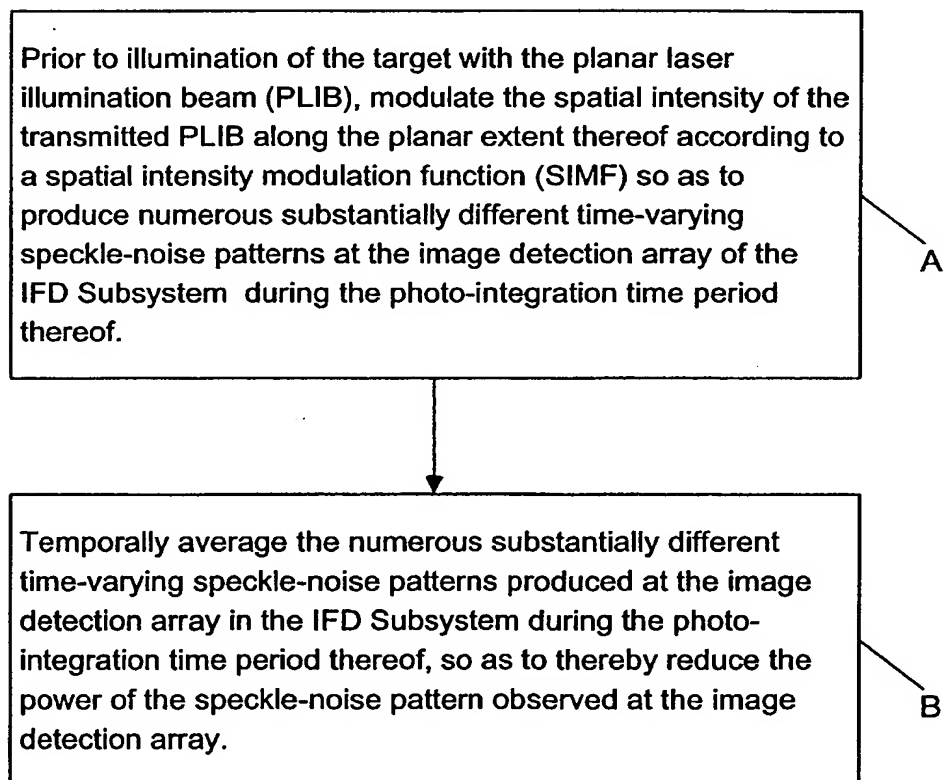
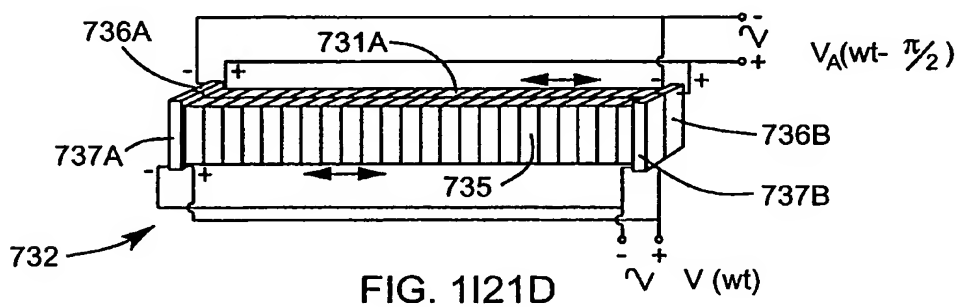
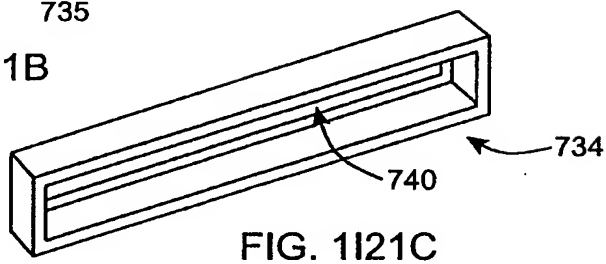
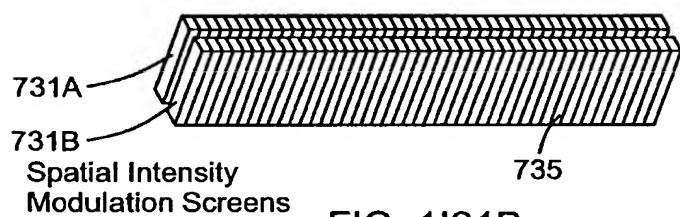
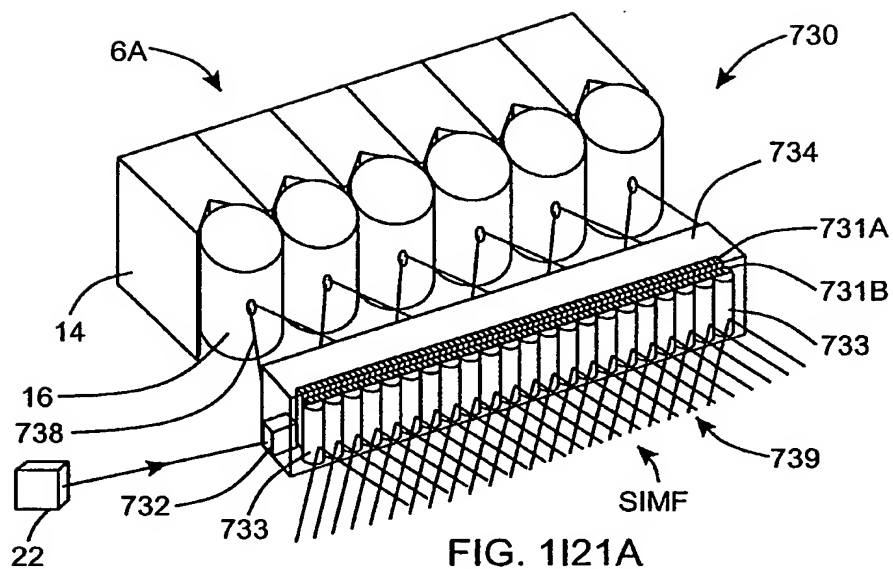


FIG. 1120B



Sixth Generalized Method Of
Reducing Speckle-Noise Patterns
At Image Detection Array
Of The IFD Subsystem (3)

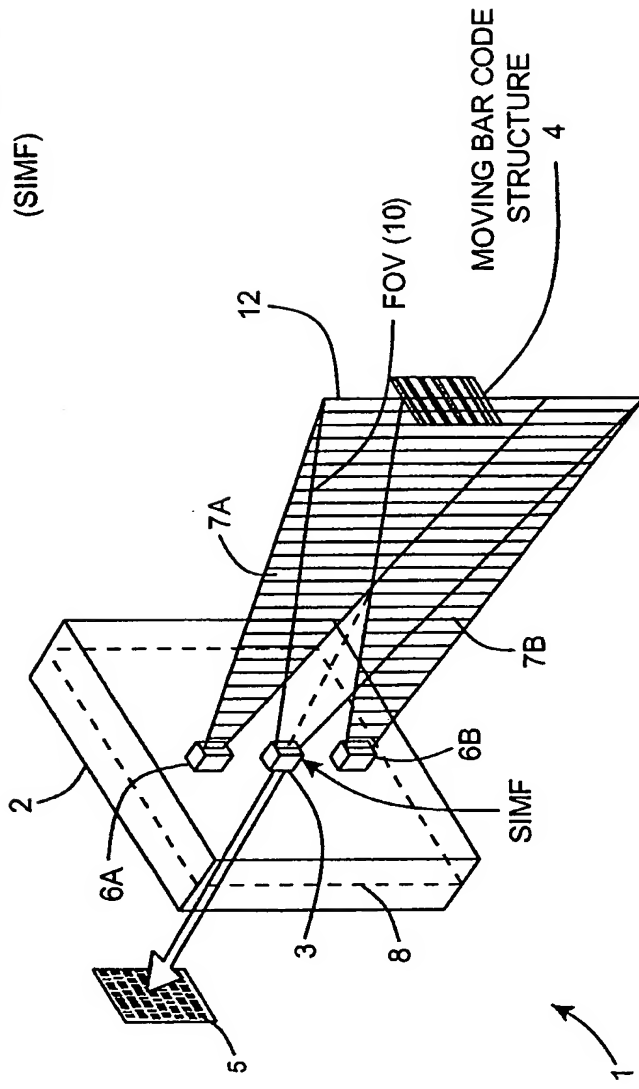


FIG. 1122

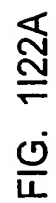


FIG. 1122A

THE SIXTH GENERALIZED SPECKLE-NOISE PATTERN REDUCTION
METHOD OF THE PRESENT INVENTION

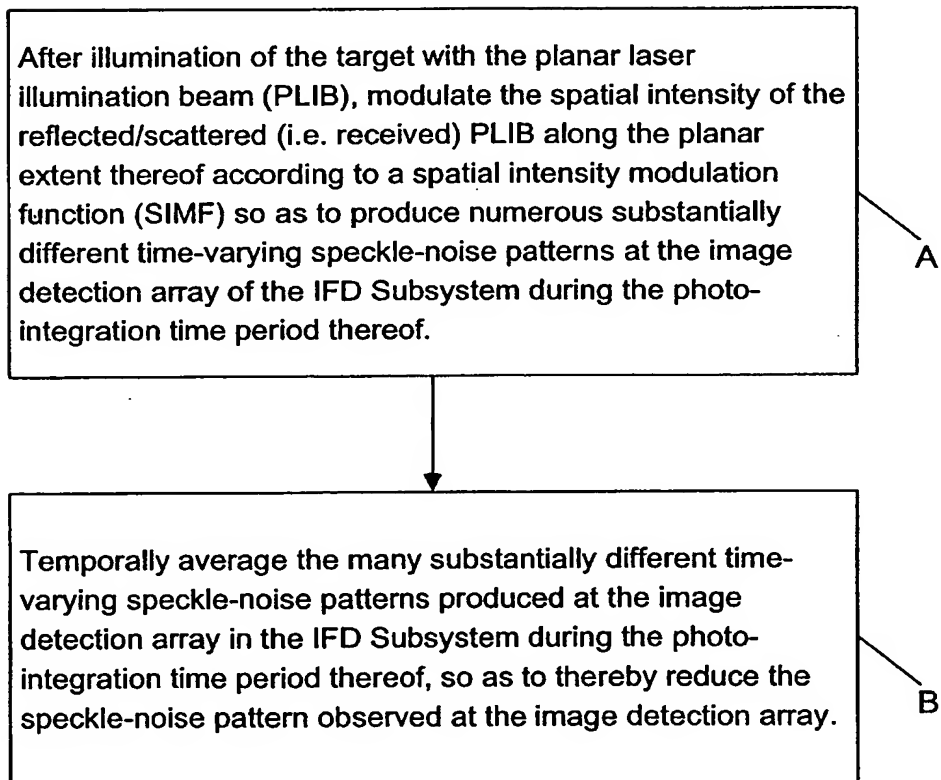


FIG. 1122B

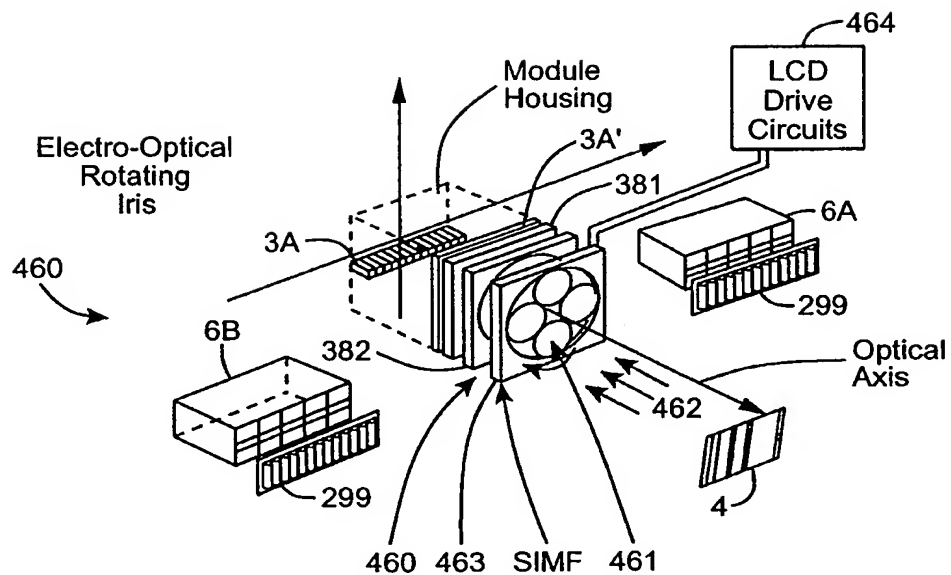


FIG. 1I23A

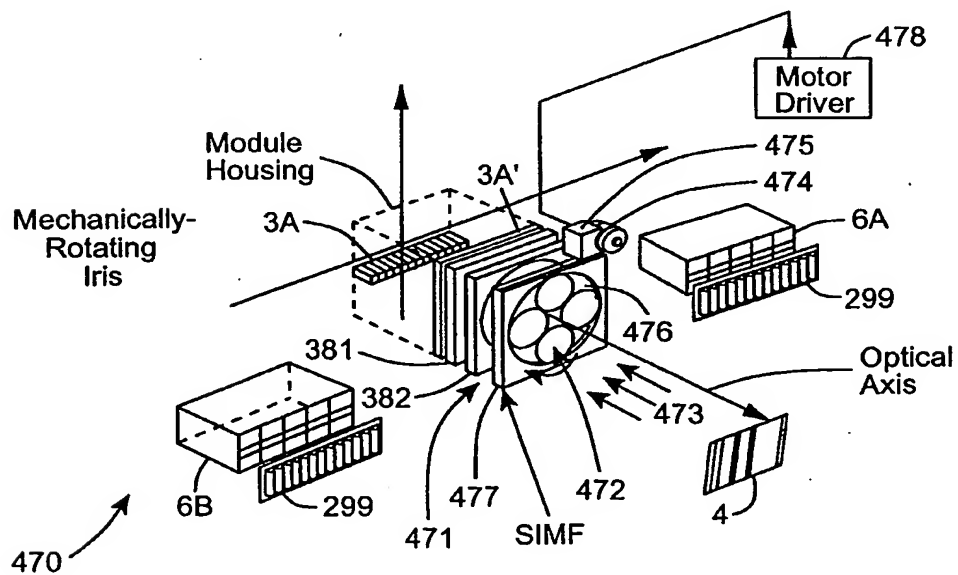


FIG. 1I23B

Seventh Generalized Method Of
Reducing Speckle-Noise Patterns
At Image Detection Array
Of The IFD Subsystem (3)

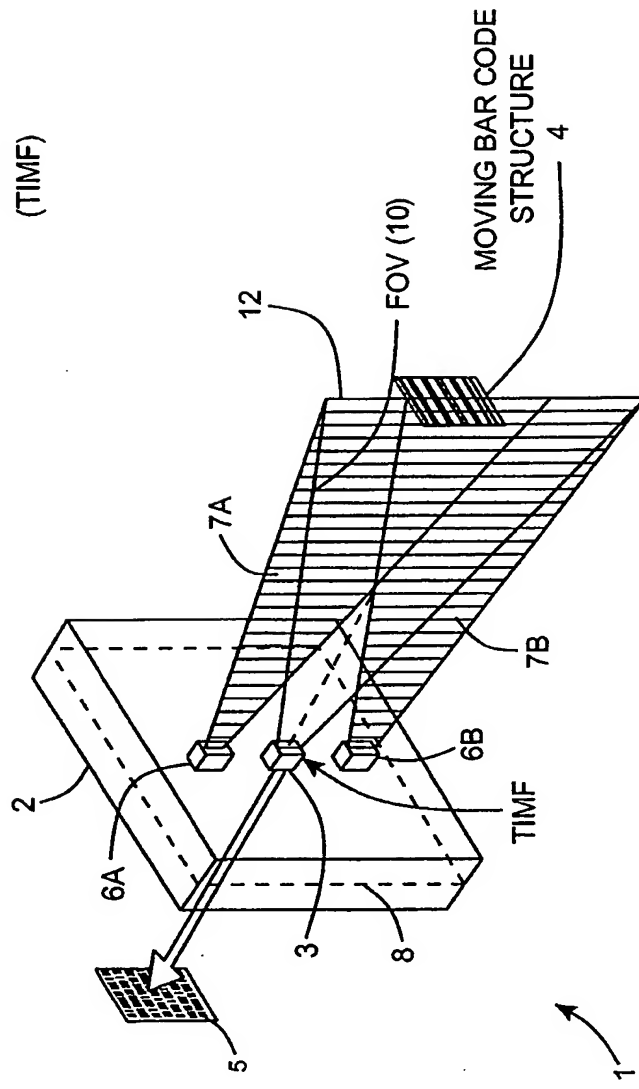


FIG. 1124

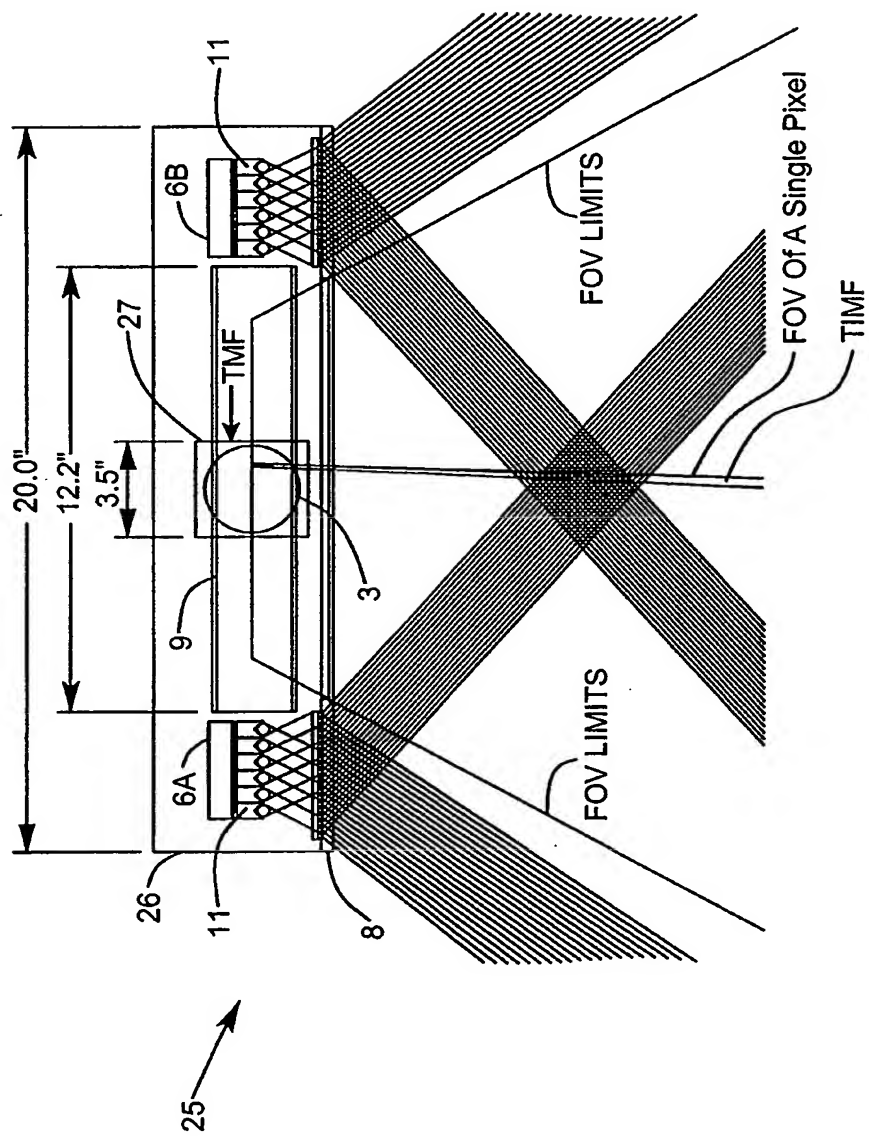


FIG. 1124A

THE SEVENTH GENERALIZED SPECKLE-NOISE PATTERN REDUCTION
METHOD OF THE PRESENT INVENTION

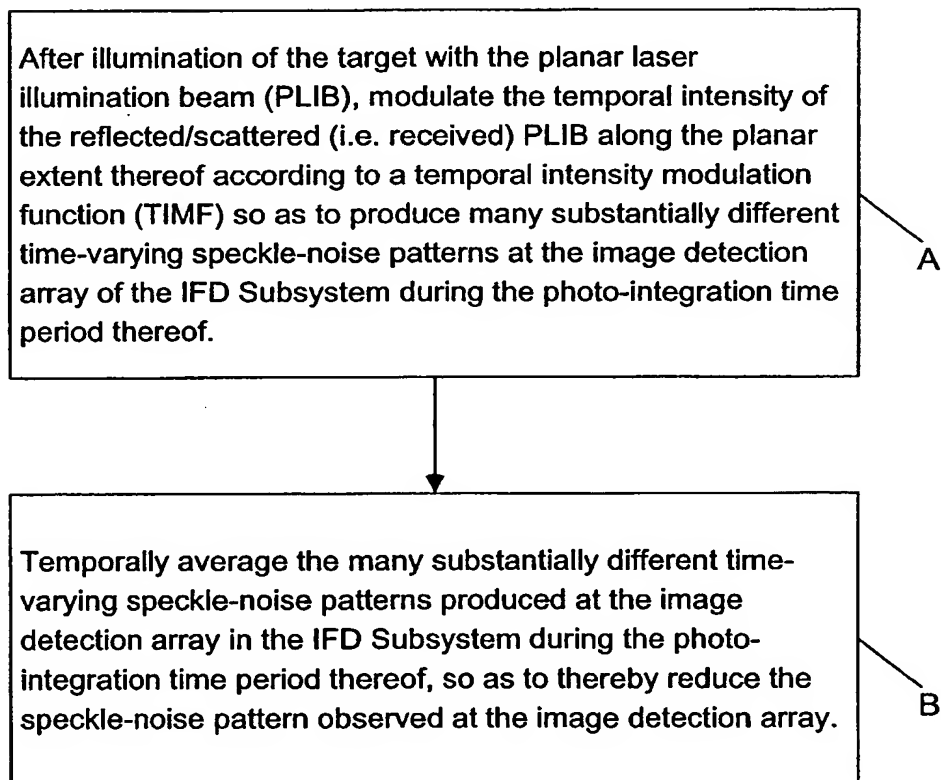


FIG. 1I24B

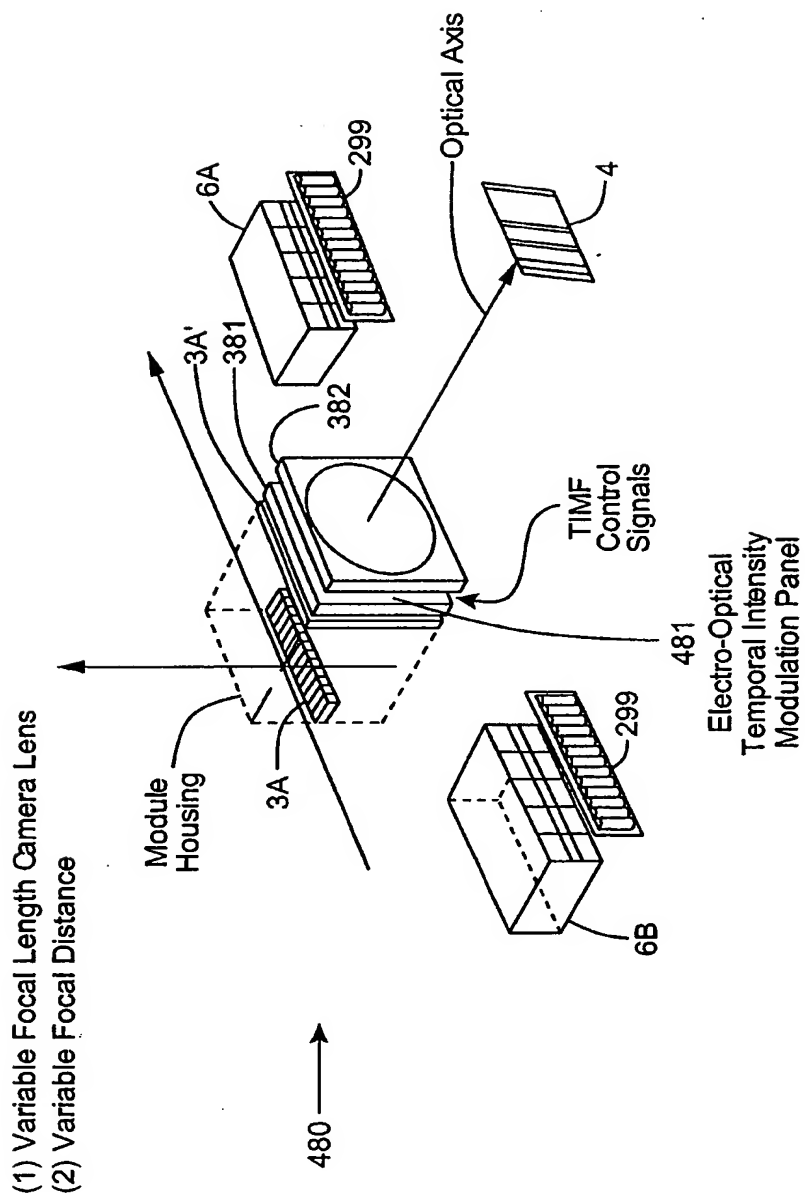
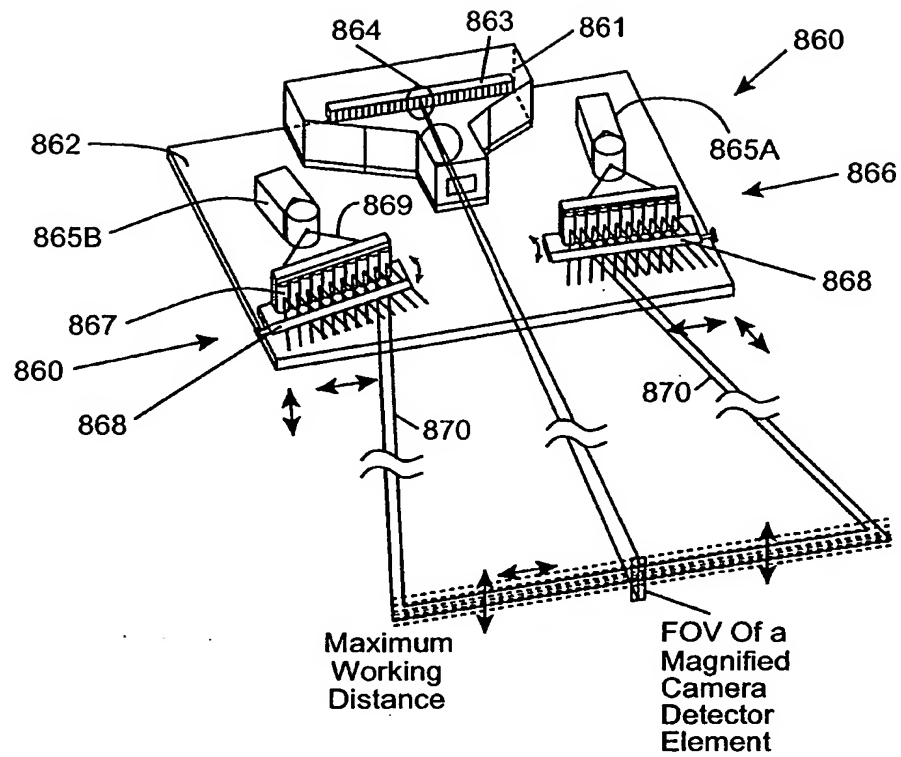


FIG. 1I24C



* Lateral And
Transverse
Micro-oscillation
Of PLIB

FIG. 1125A1

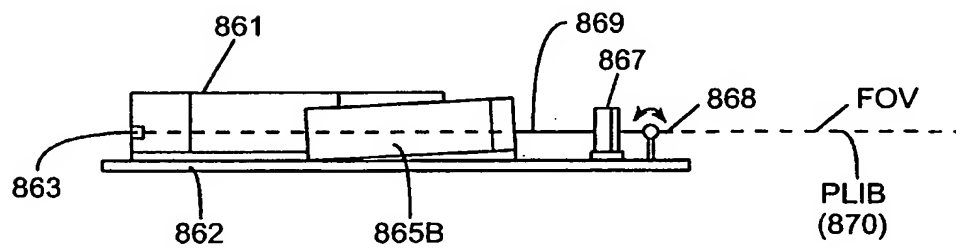


FIG. 1125A2

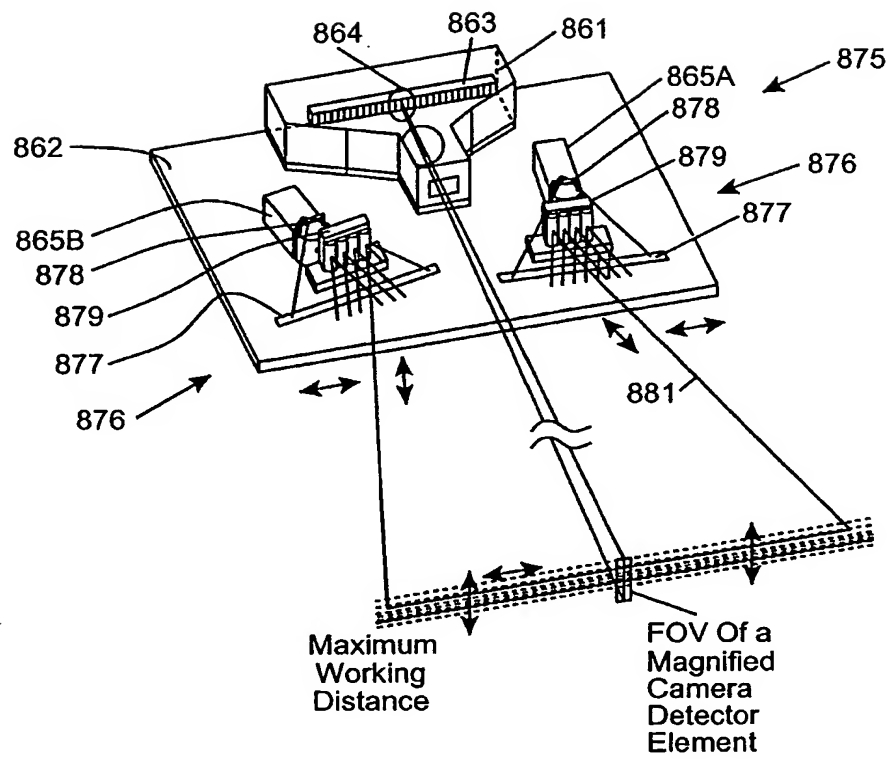


FIG. 1125B1

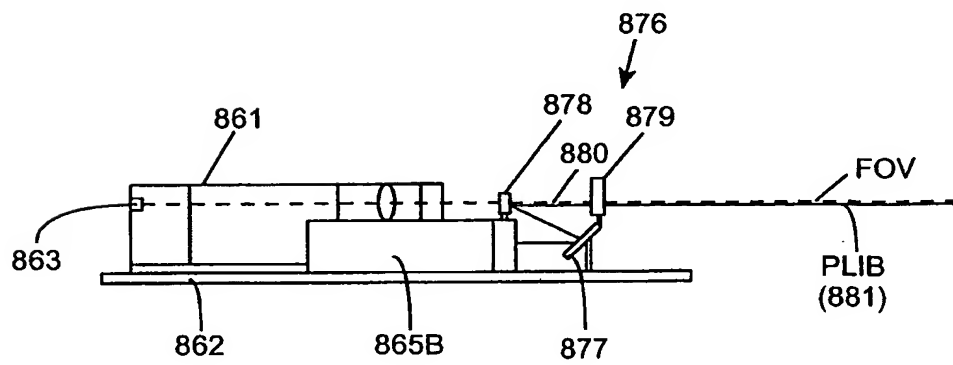


FIG. 1125B2

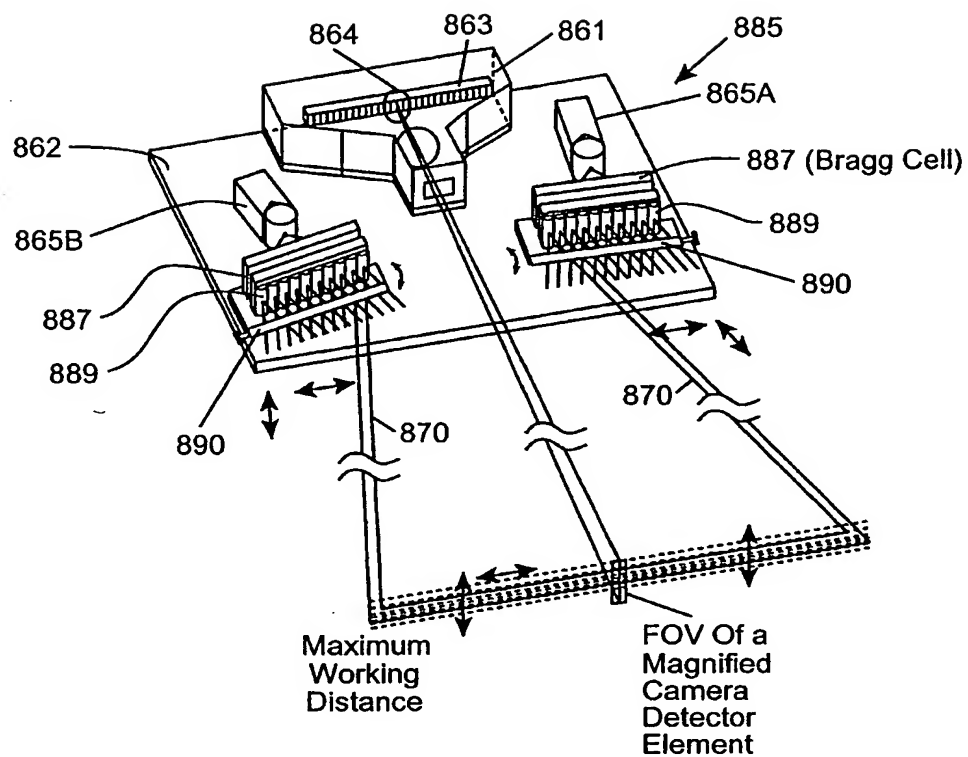


FIG. 1I25C1

* Lateral And
Transverse
Micro-oscillation
Of PLIB

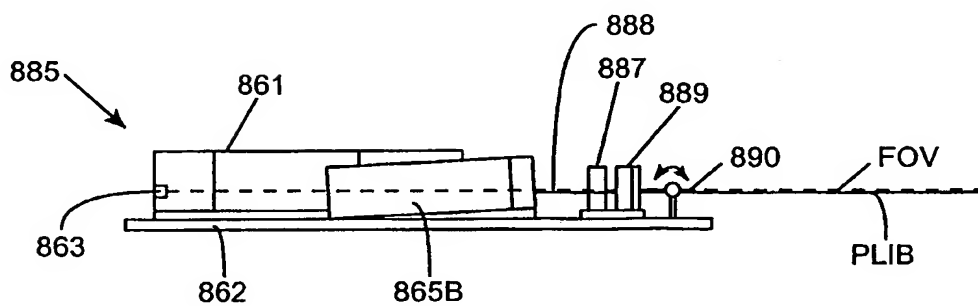


FIG. 1I25C2

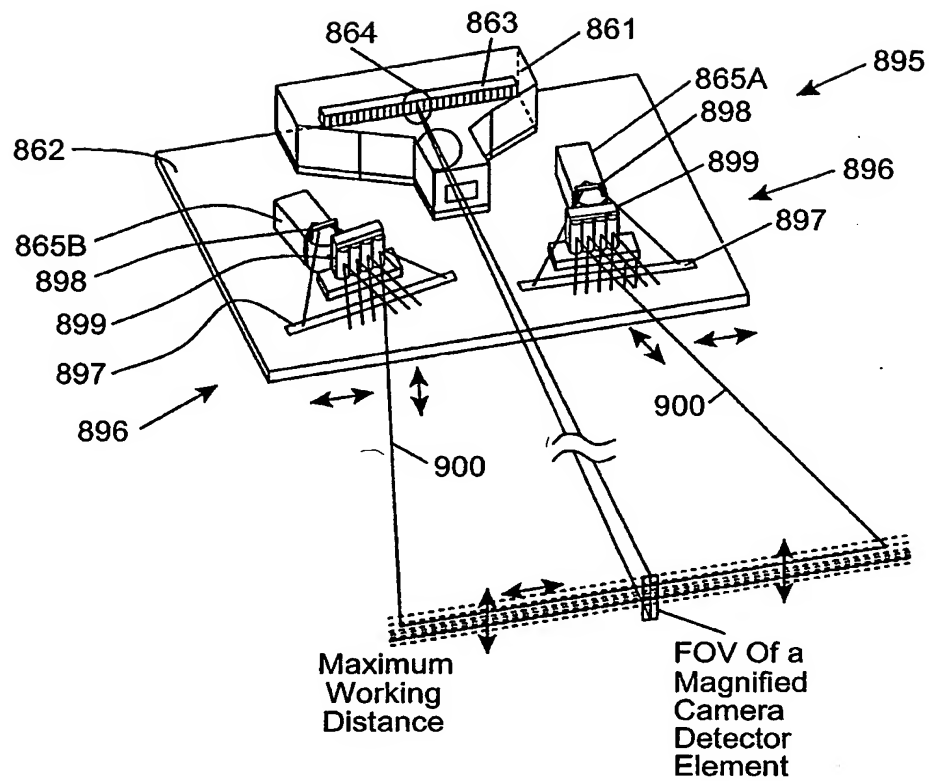


FIG. 1I25D1

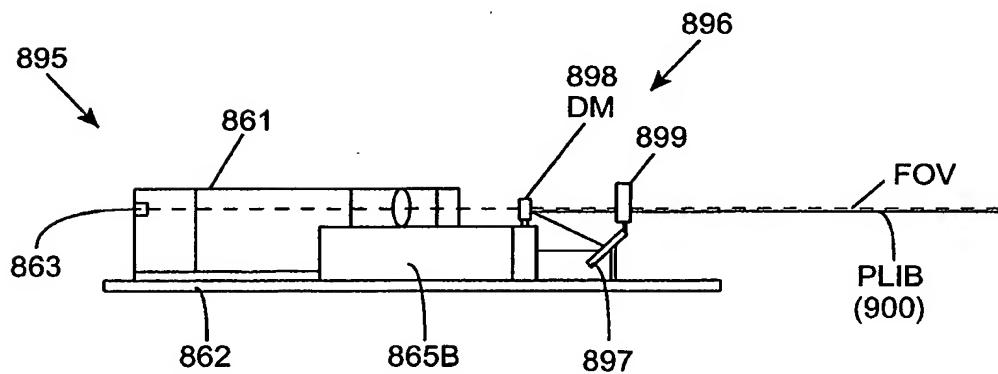
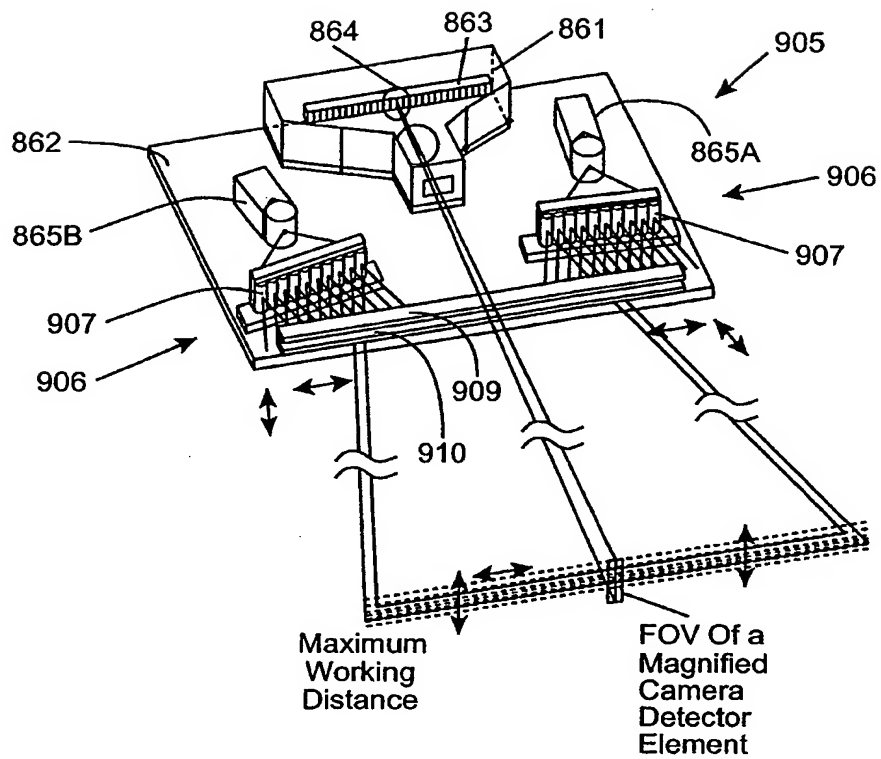


FIG. 1I25D2



* Lateral And
Transverse
Micro-oscillation
Of PLIB

FIG. 1I25E1

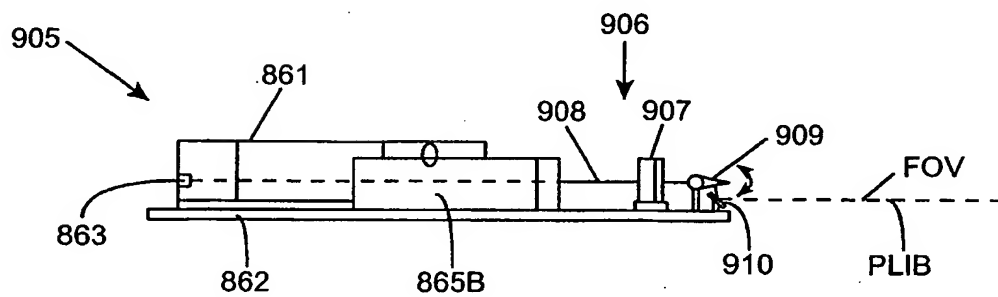


FIG. 1I25E2

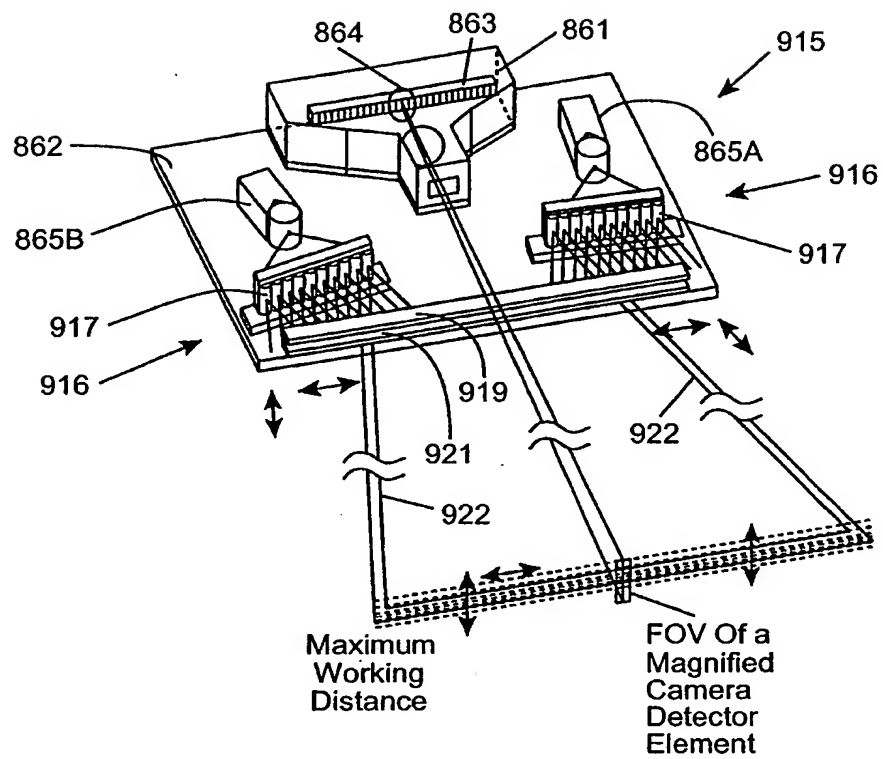


FIG. 1I25F1

* Lateral And
Transverse
Micro-oscillation
Of PLIB

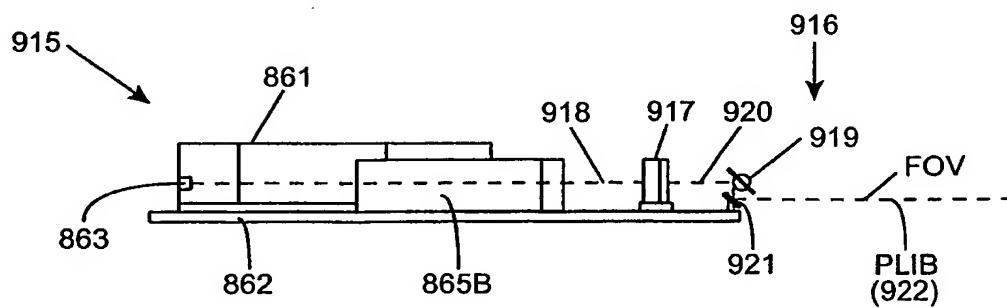
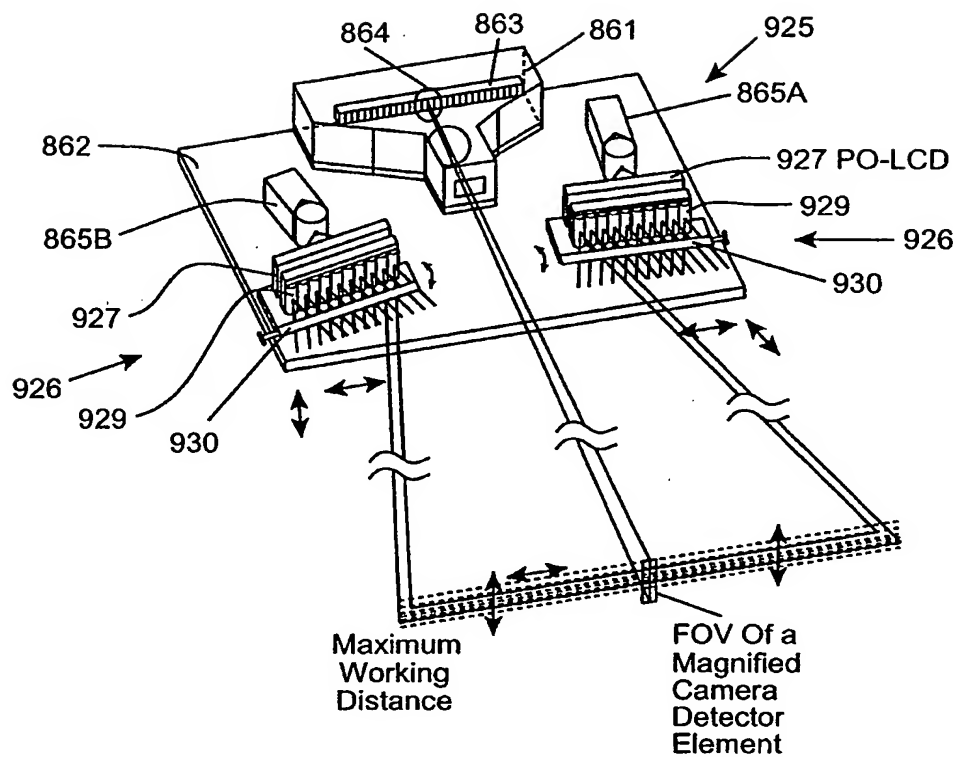


FIG. 1I25F2



* Lateral And
Transverse
Micro-oscillation
Of PLIB

FIG. 1I25G1

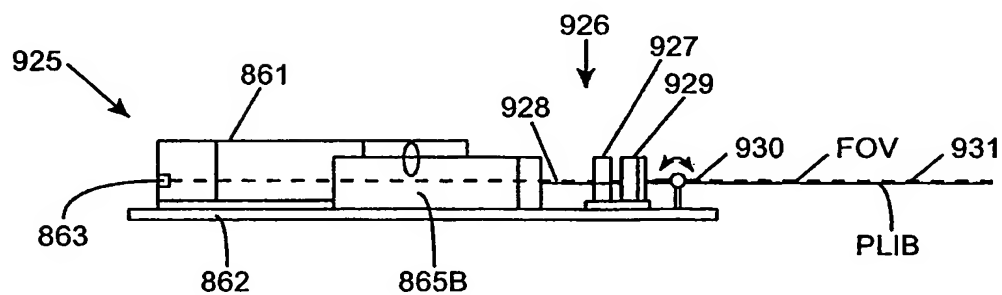


FIG. 1I25G2

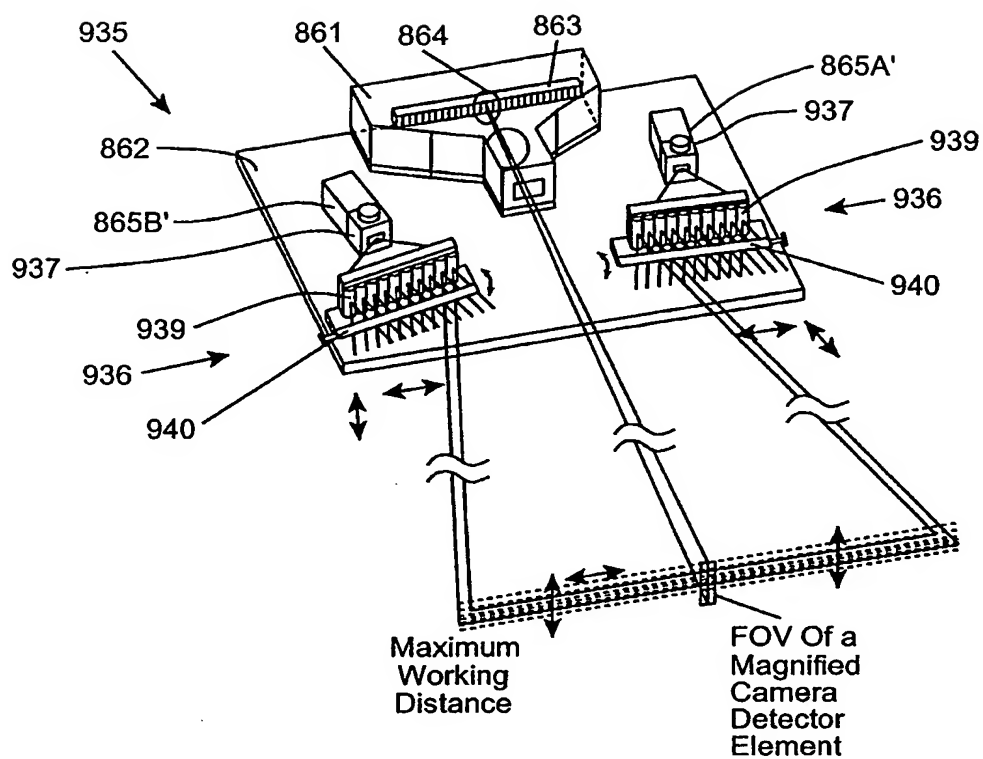


FIG. 1I25H1

* Lateral And
Transverse
Micro-oscillation
Of PLIB

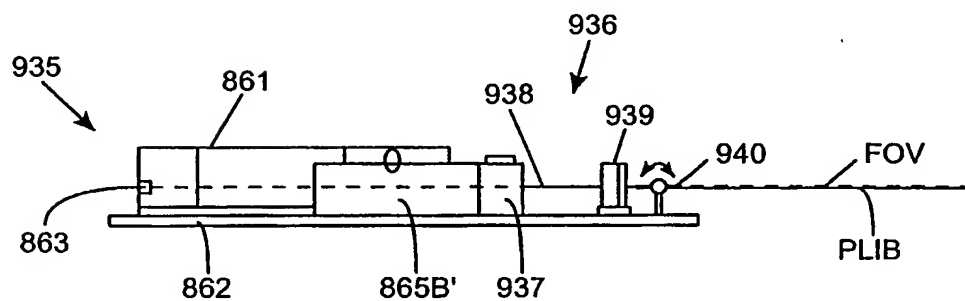


FIG. 1I25H2

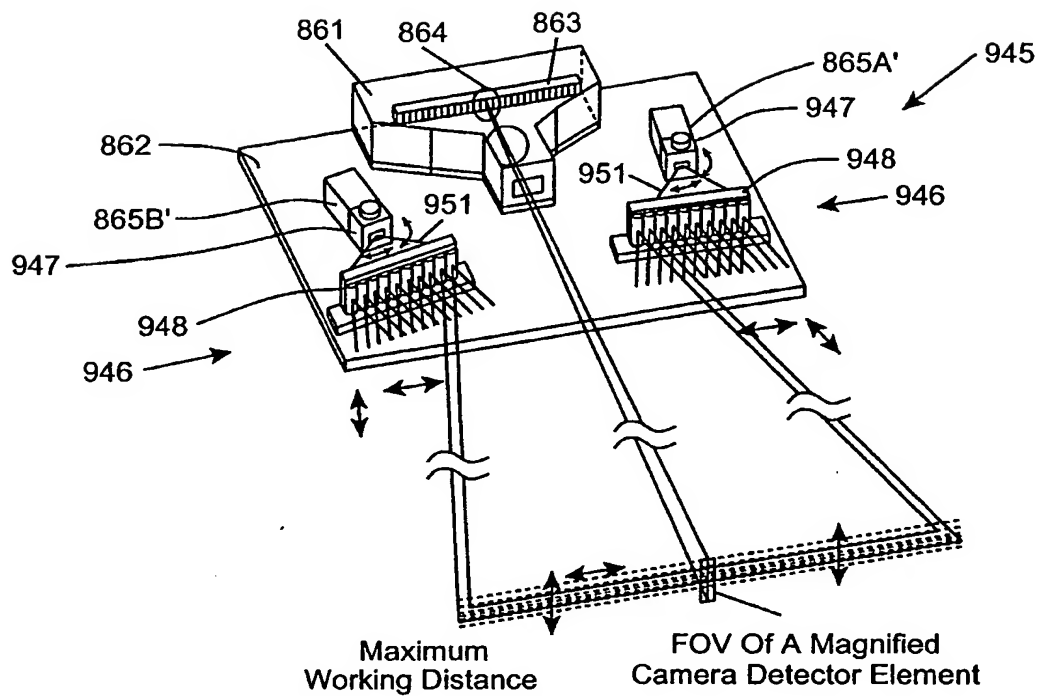


FIG. 112511

* Lateral And Transverse Micro-oscillation Of PLIB

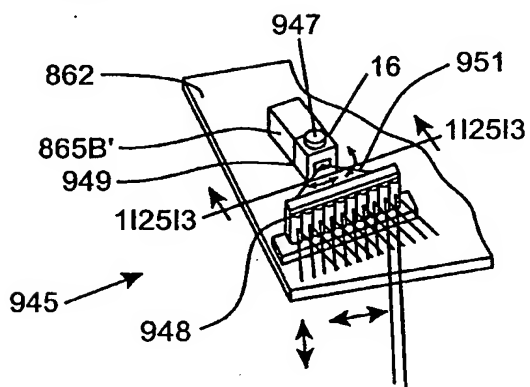


FIG. 112512

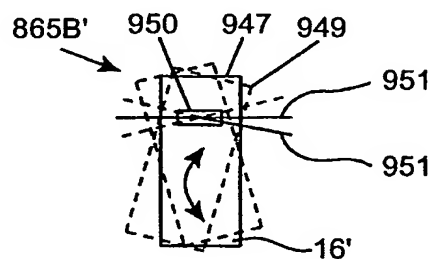


FIG. 112513

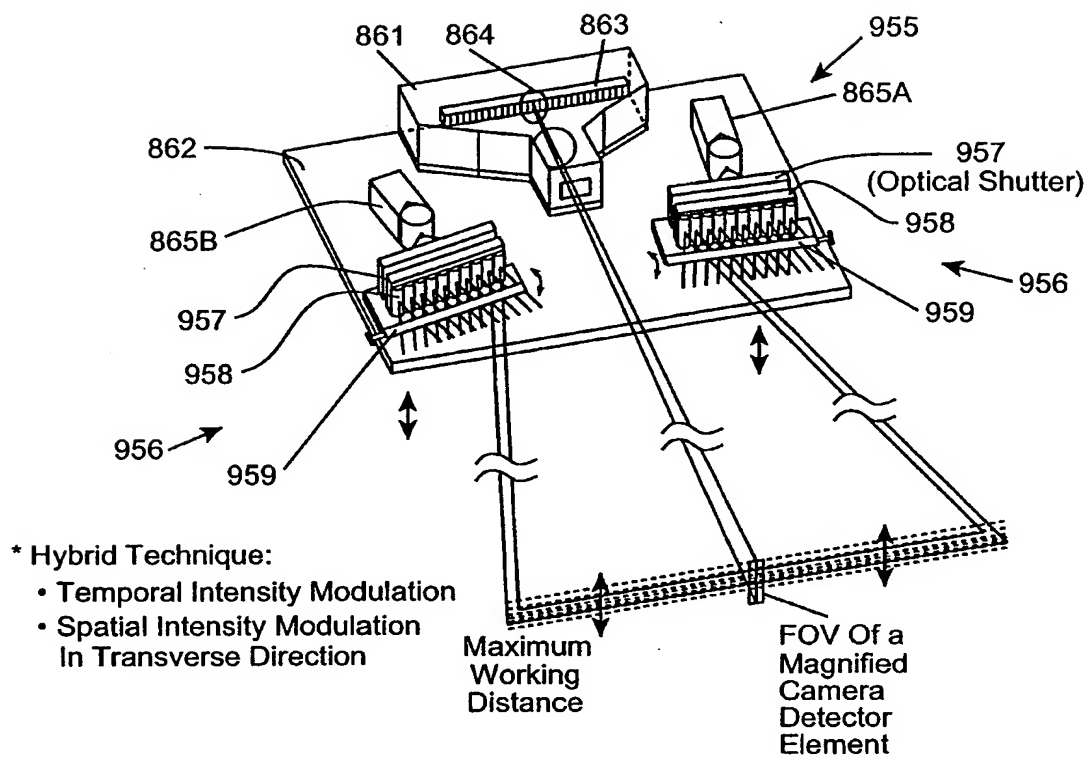


FIG. 1I25J1

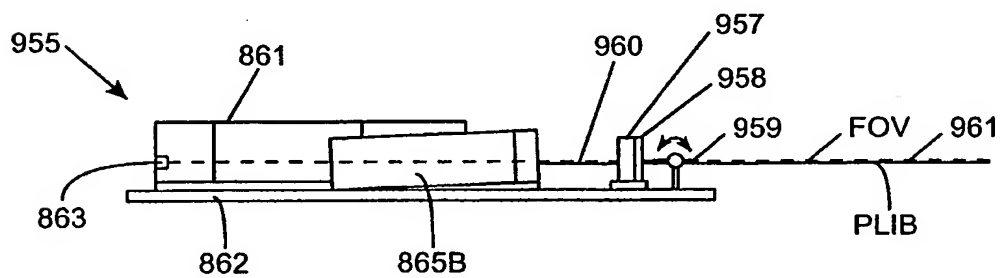


FIG. 1I25J2

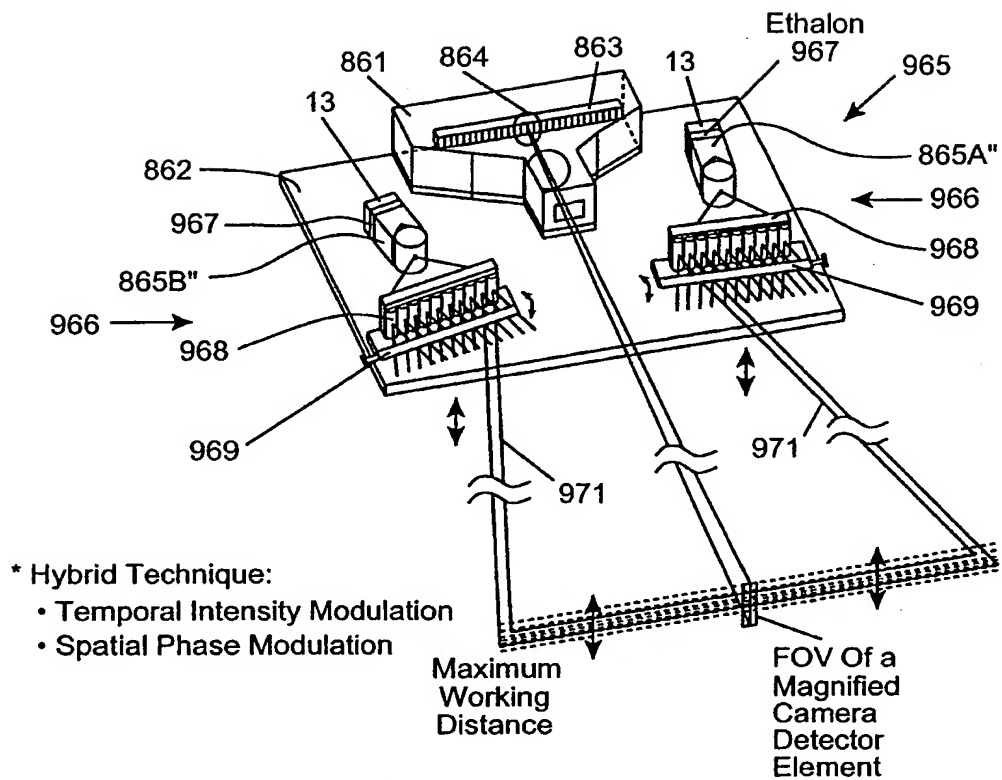


FIG. 1I25K1

* Transverse
Micro-oscillation
Of PLIB

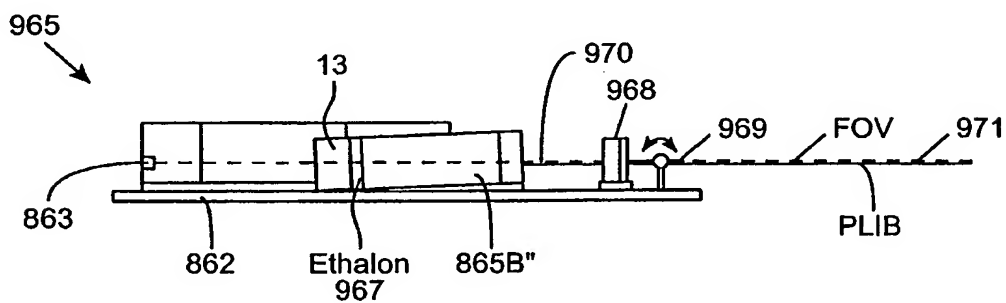
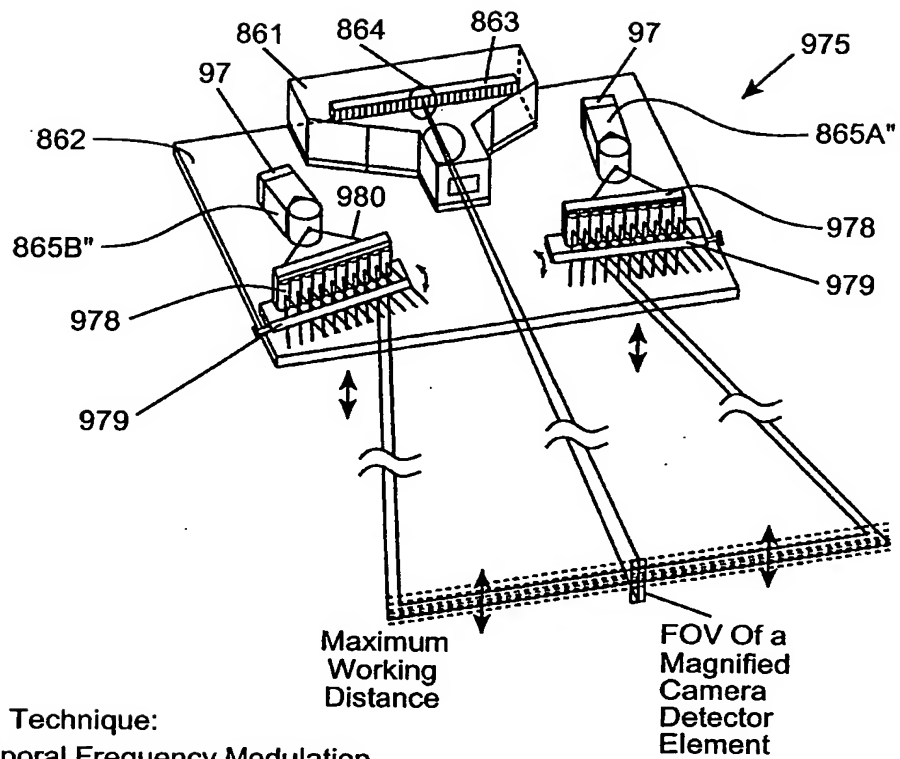


FIG. 1I25K2



- * Hybrid Technique:
- Temporal Frequency Modulation
 - Spatial Phase Modulation

- * Transverse
Micro-oscillation
Of PLIB

FIG. 1I25L1

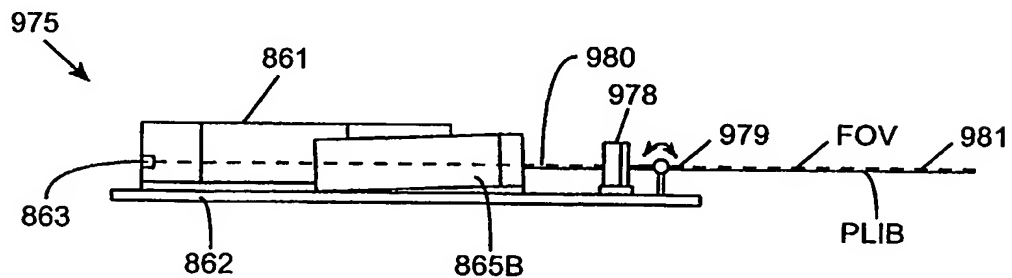
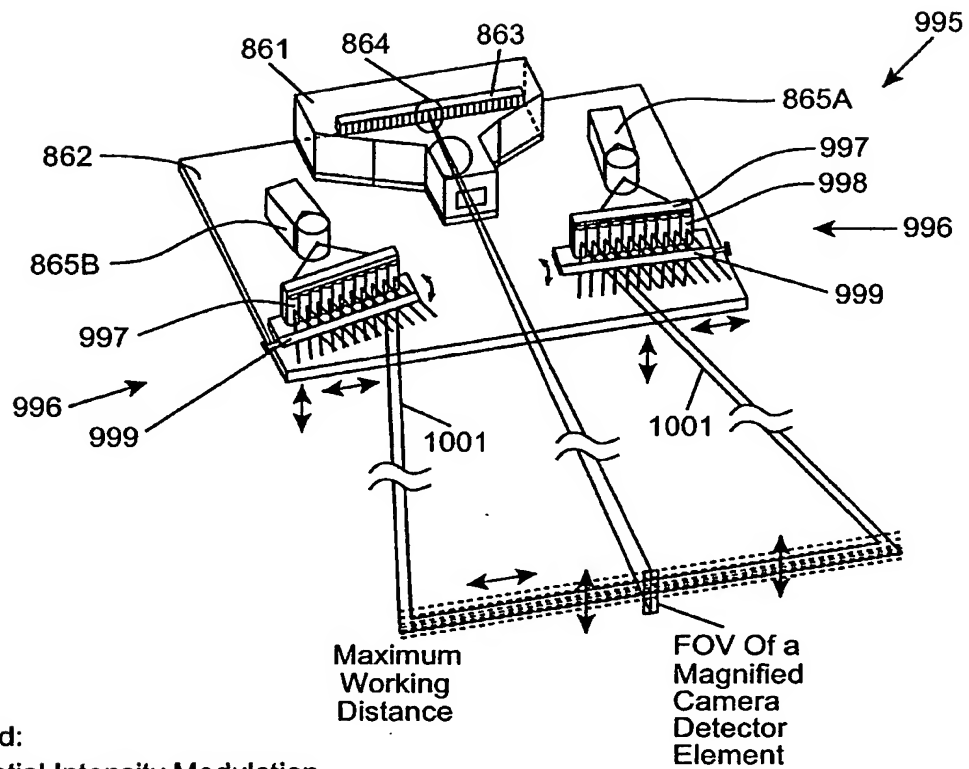


FIG. 1I25L2



- * Hybrid:
 - Spatial Intensity Modulation
 - Spatial Phase Modulation

FIG. 1I25N1

- * Lateral And Transverse Micro-oscillation Of PLIB

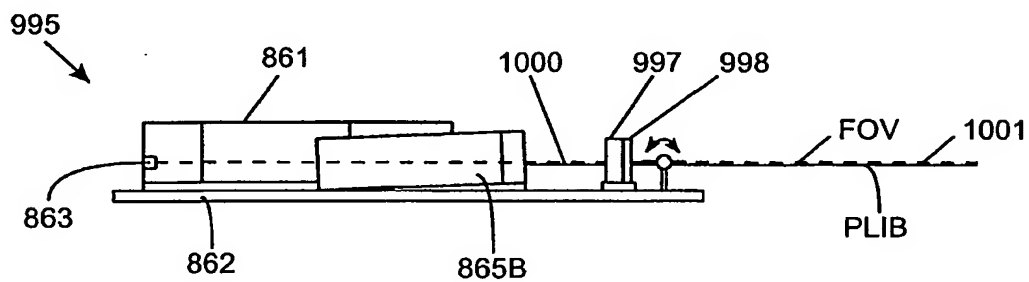


FIG. 1I25N2

Fixed Focal Length
Lens Cases

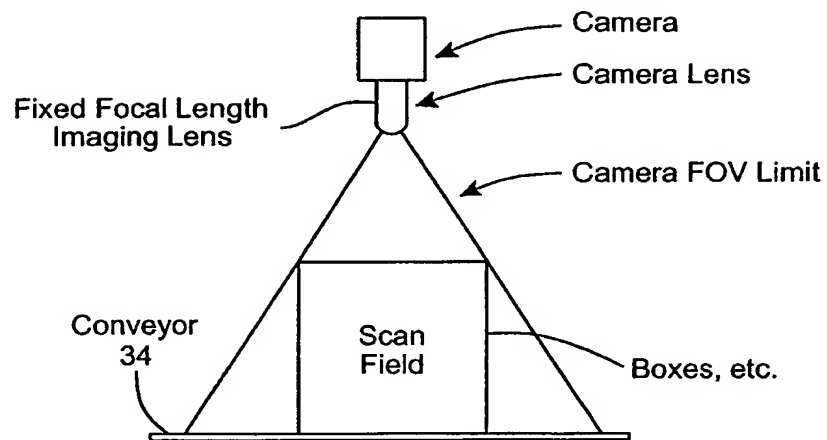


FIG. 1K1

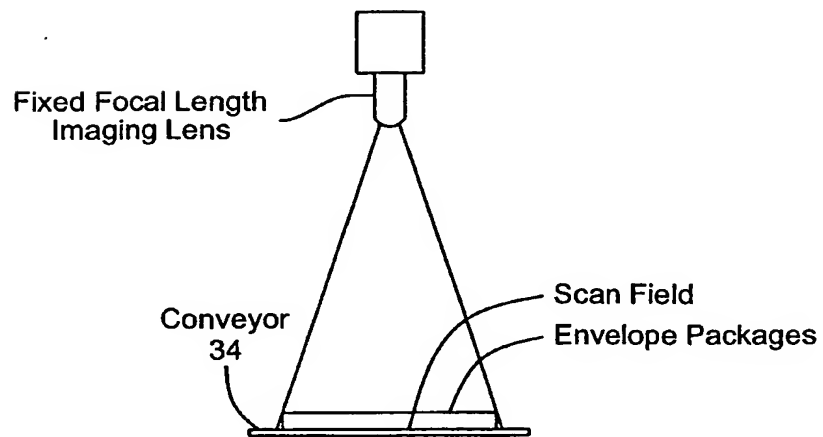


FIG. 1K2

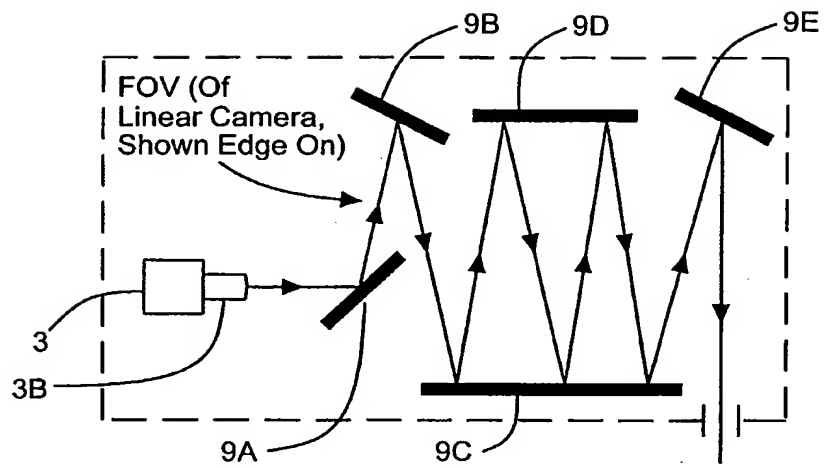


FIG. 1L1

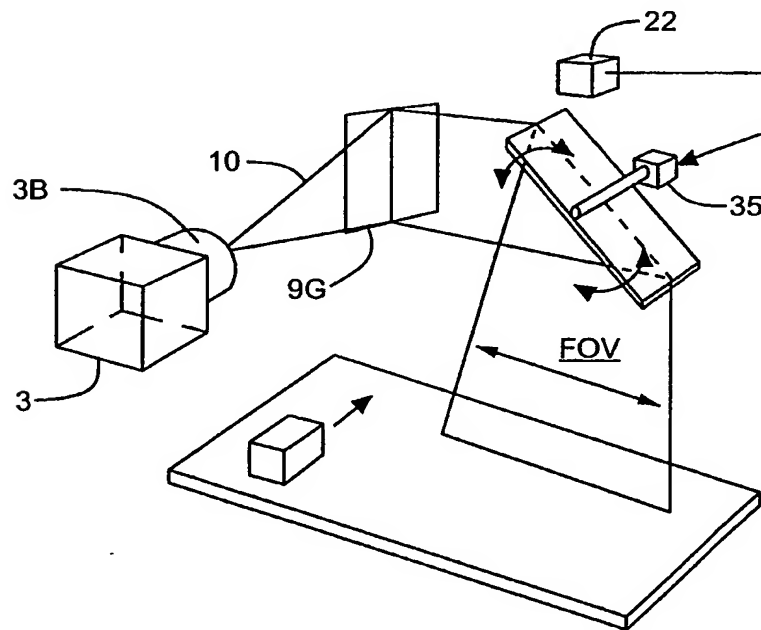


FIG. 1L2

Pixel Power Density vs. Object Distance (General Example)

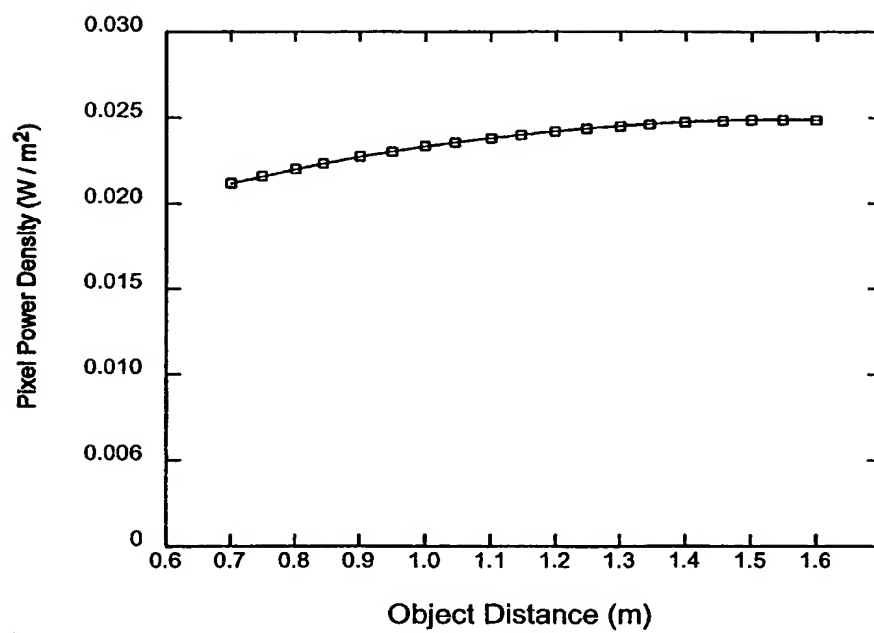


FIG. 1M1

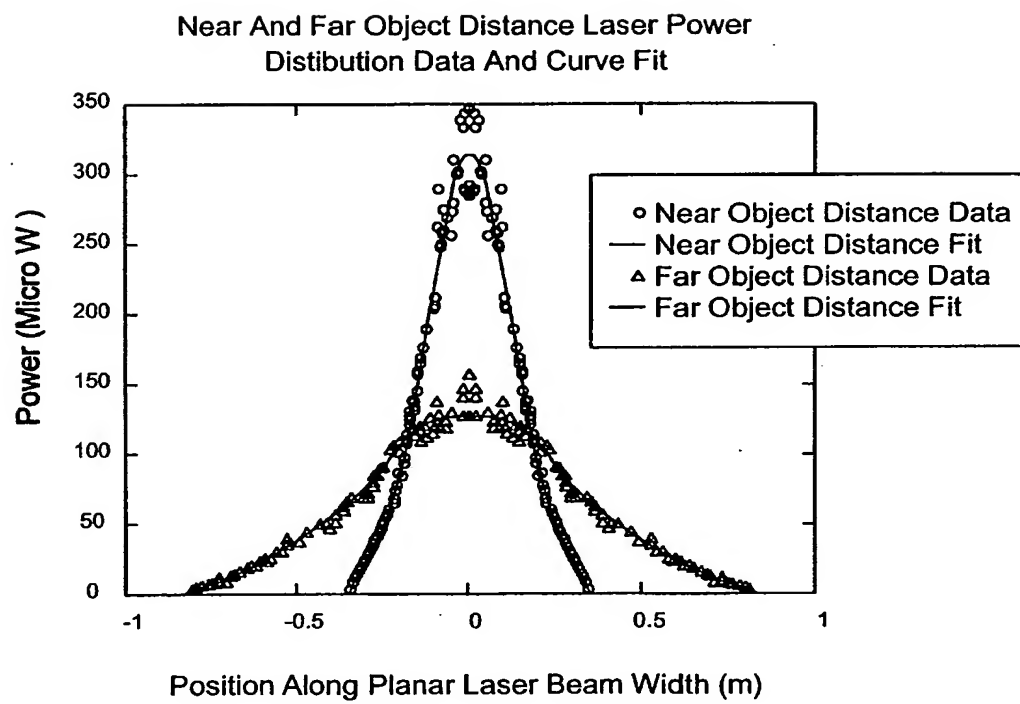


FIG. 1M2

Planar Laser Beam Width vs. Object Distance

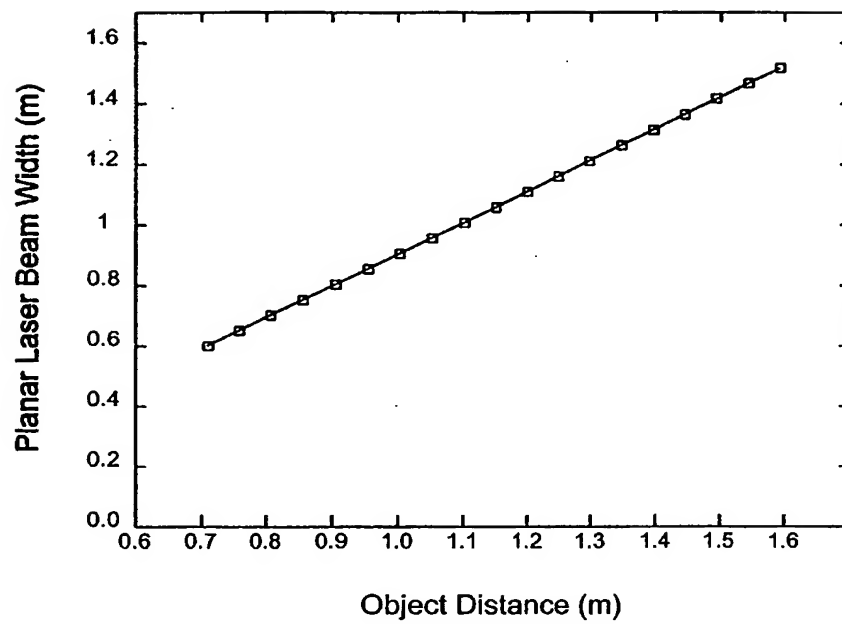


FIG. 1M3

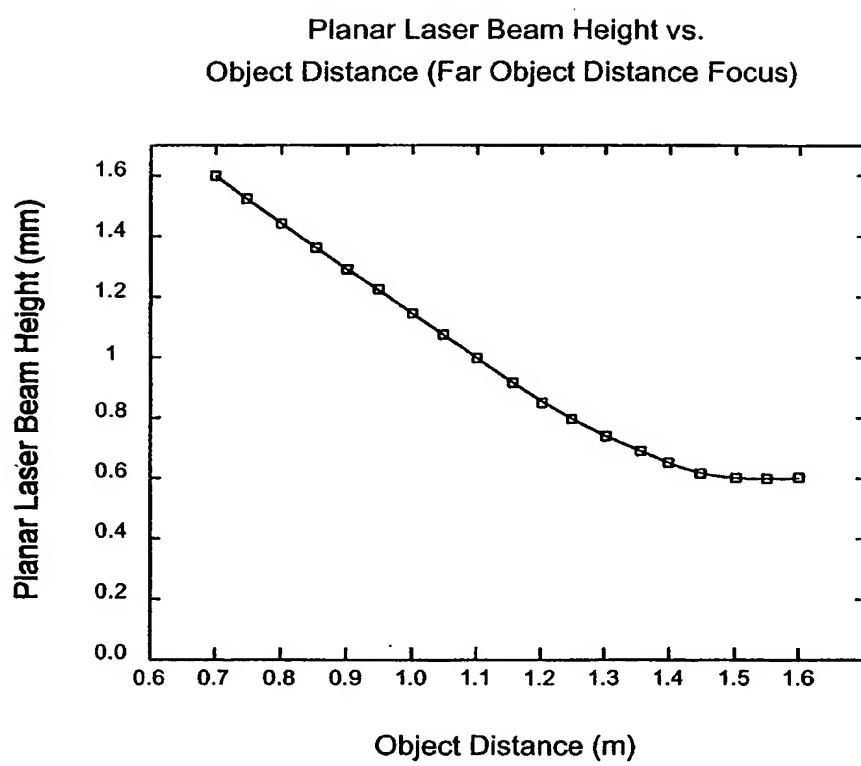


FIG. 1M4

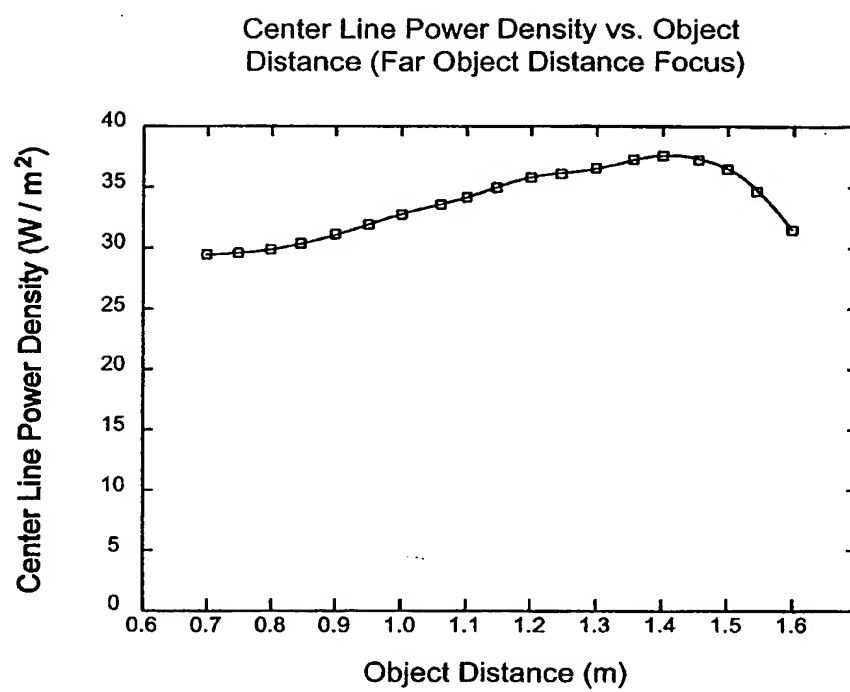


FIG. 1N

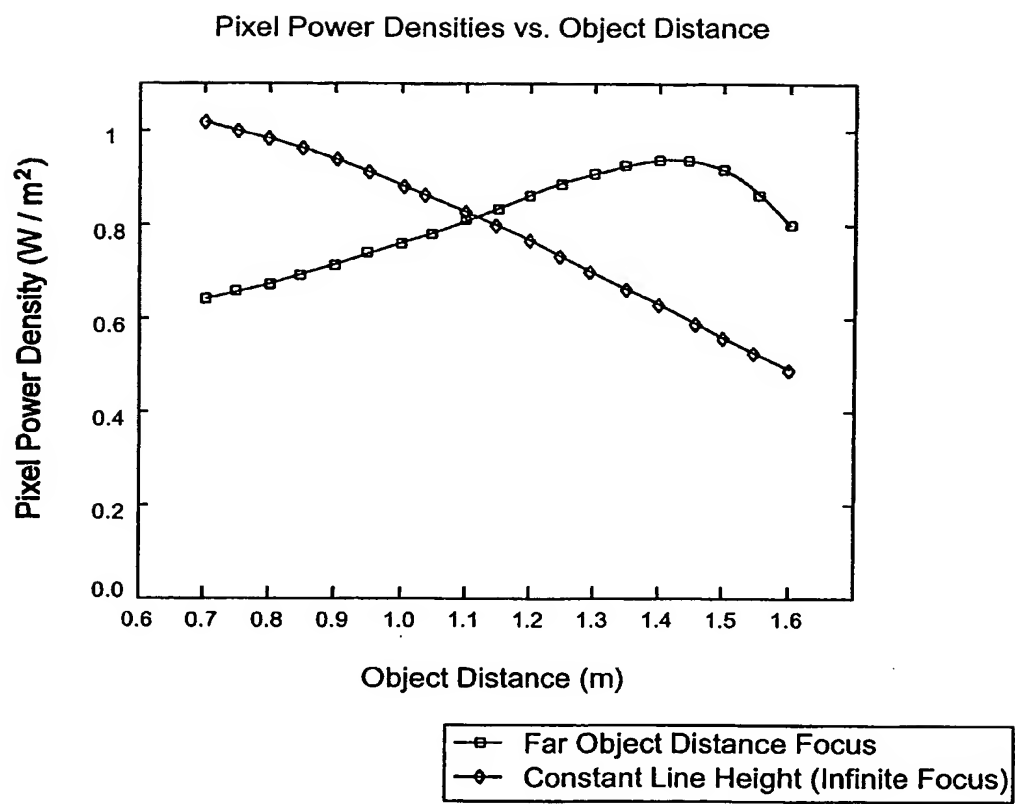


FIG. 10

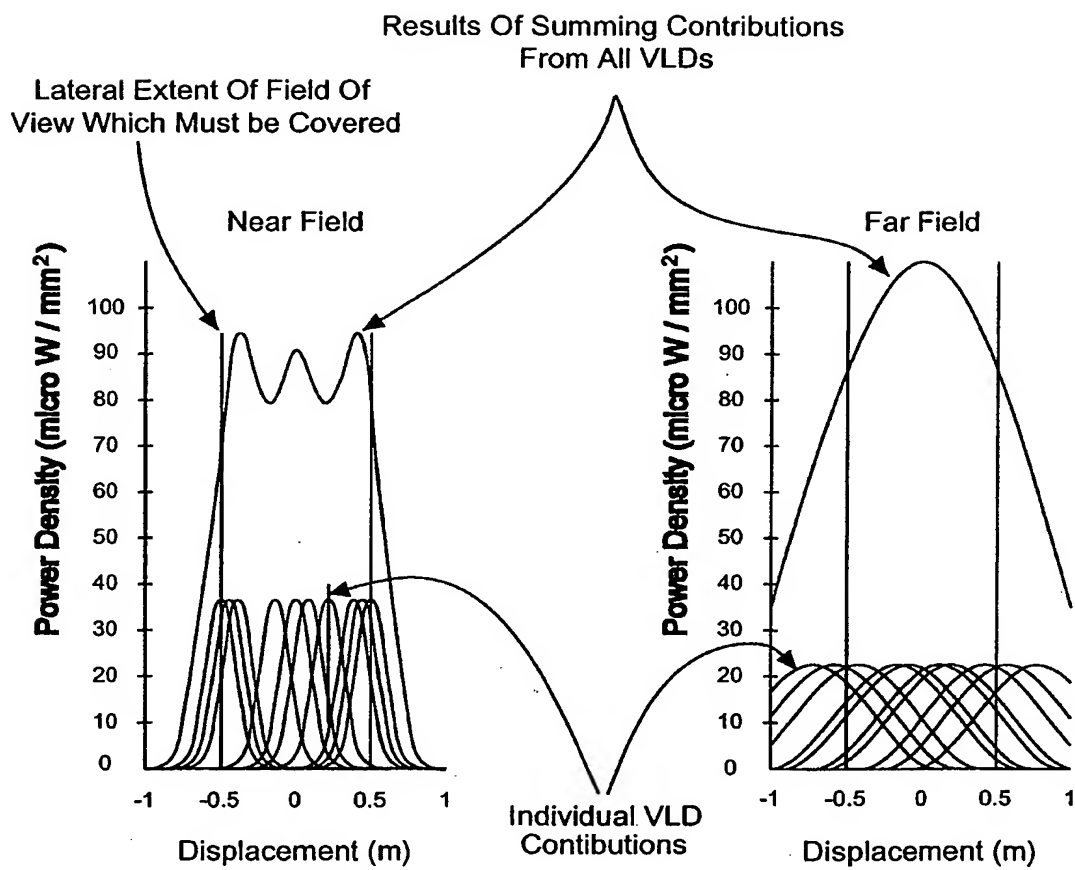


FIG. 1P1

FIG. 1P2

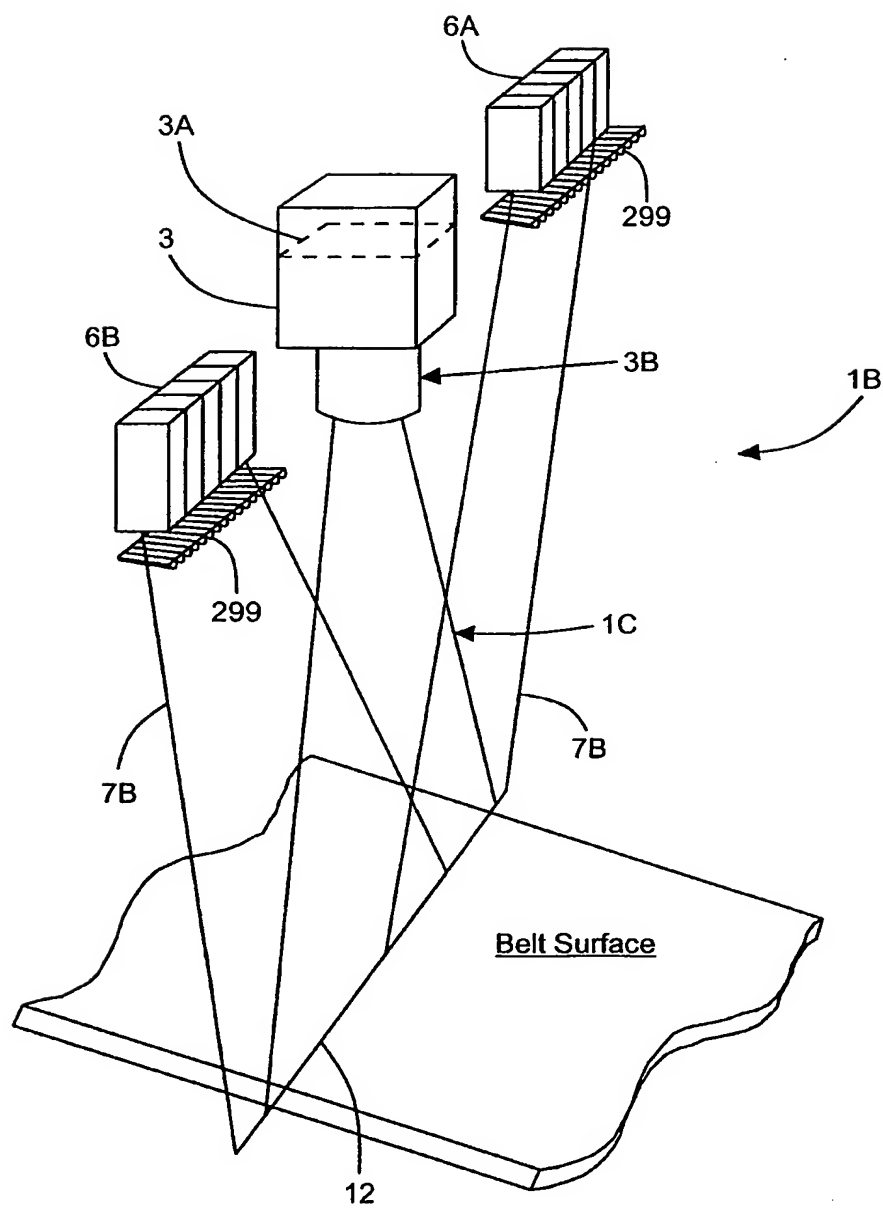


FIG. 1Q1

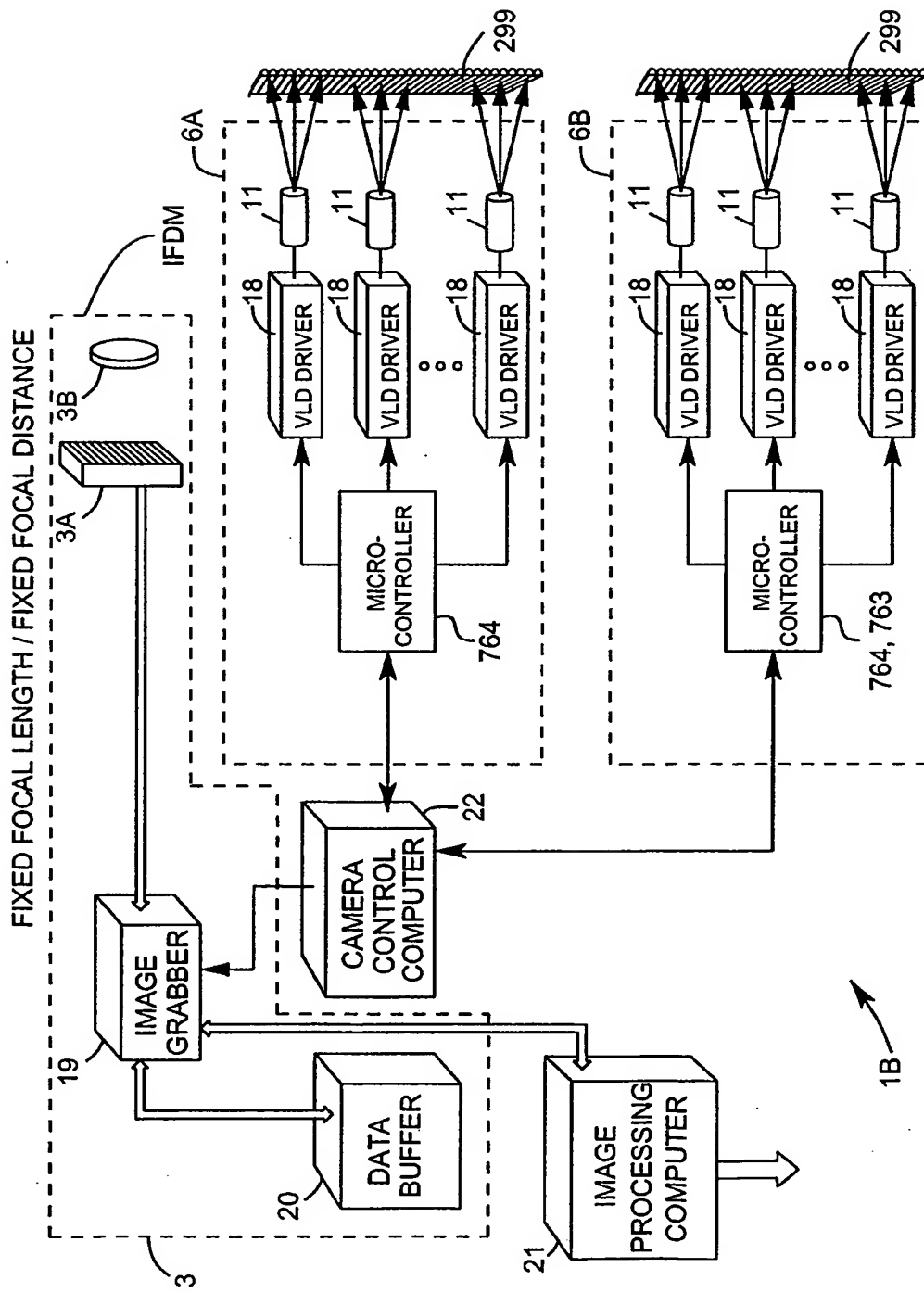


FIG. 1Q2

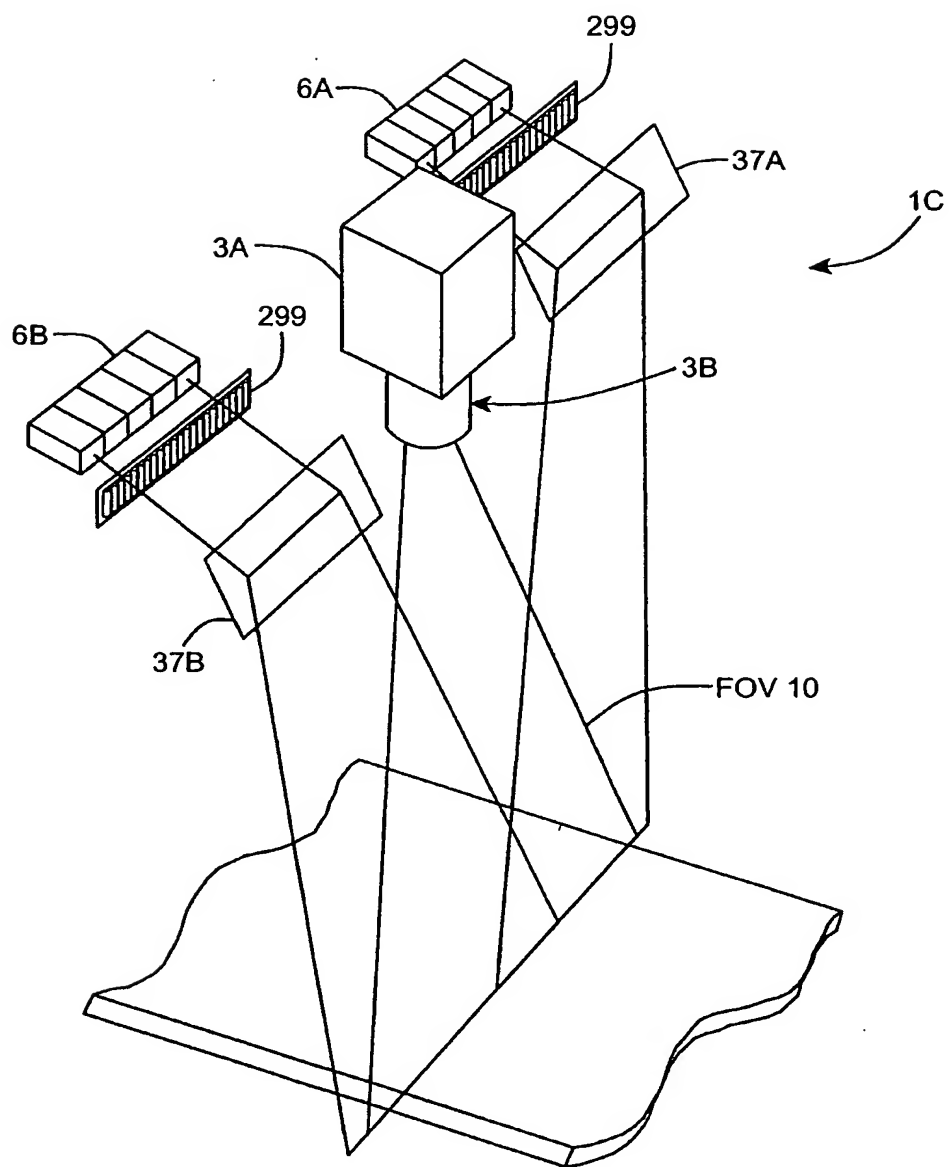
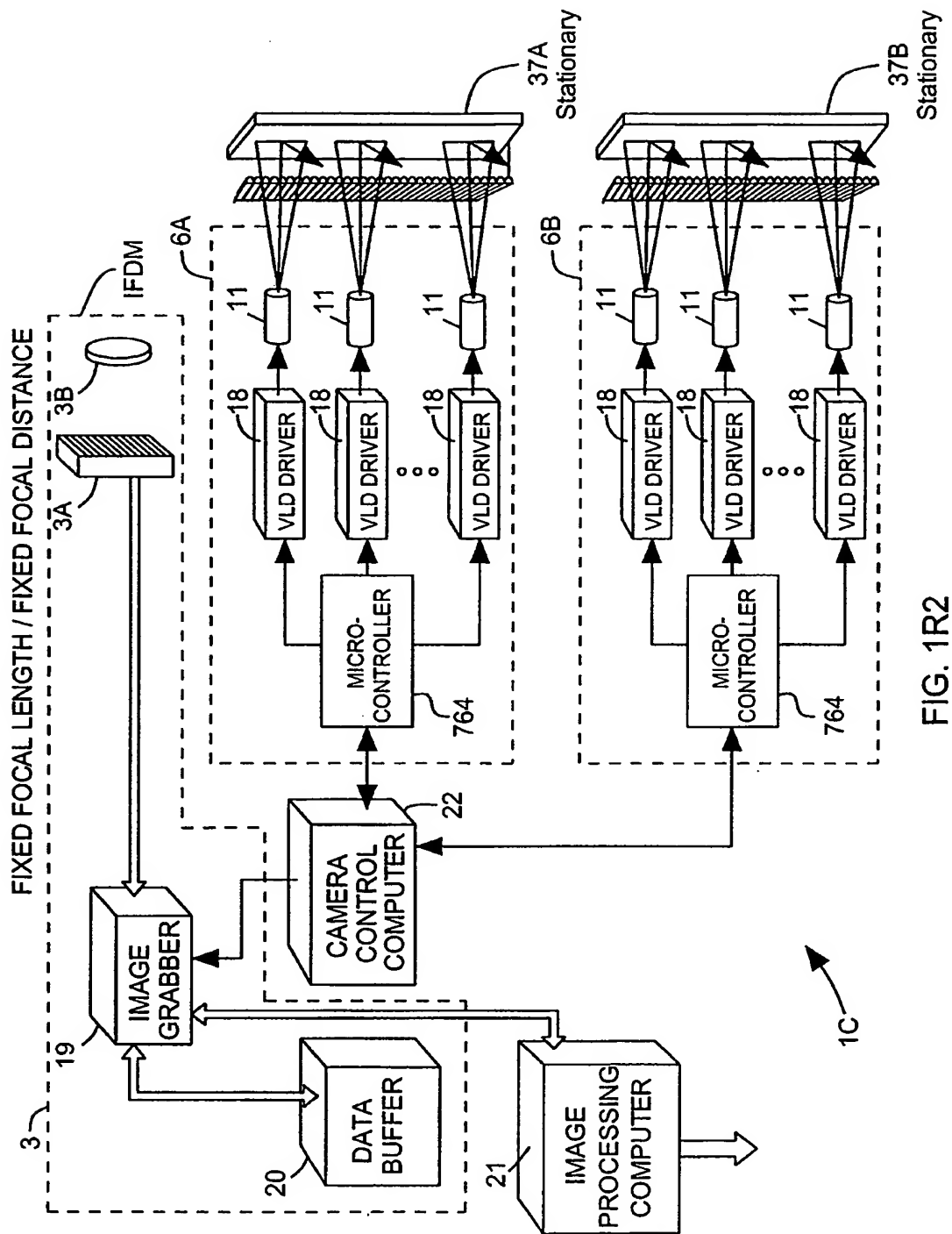


FIG. 1R1



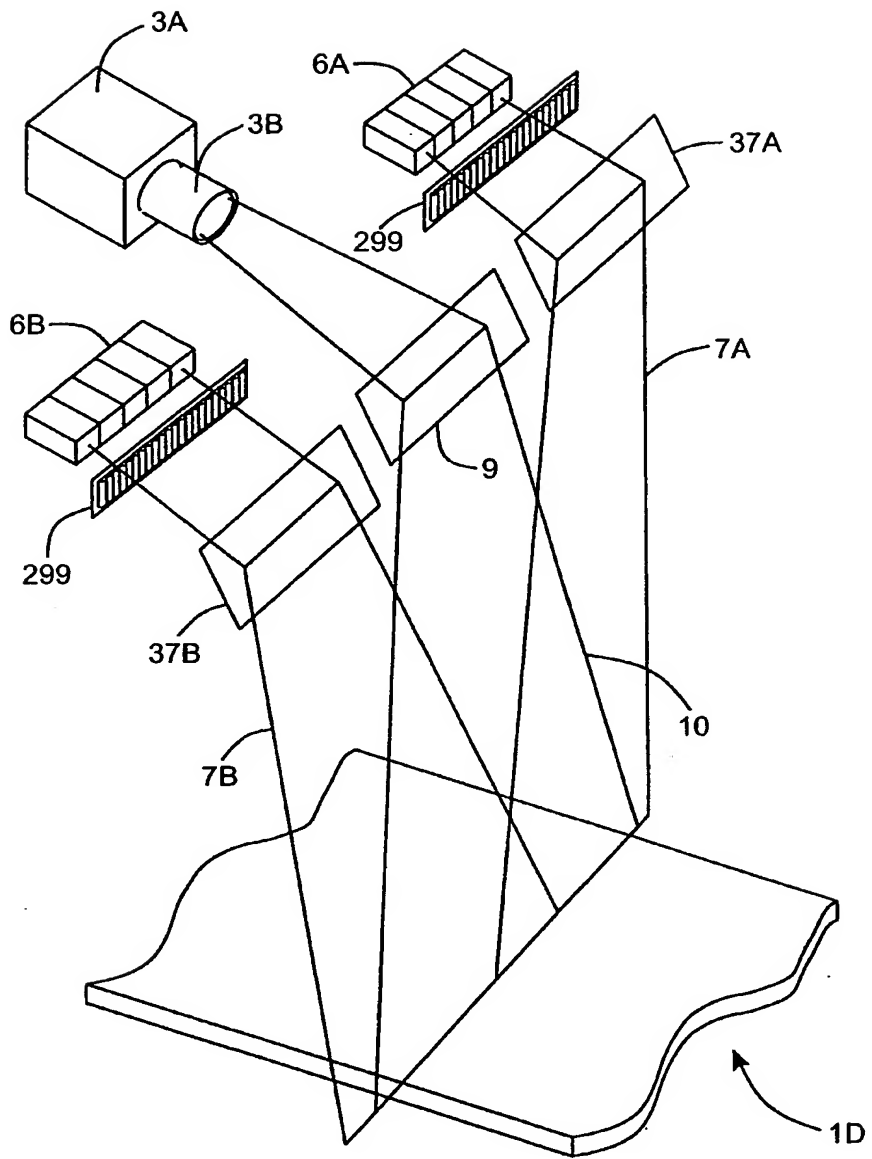


FIG. 1S1

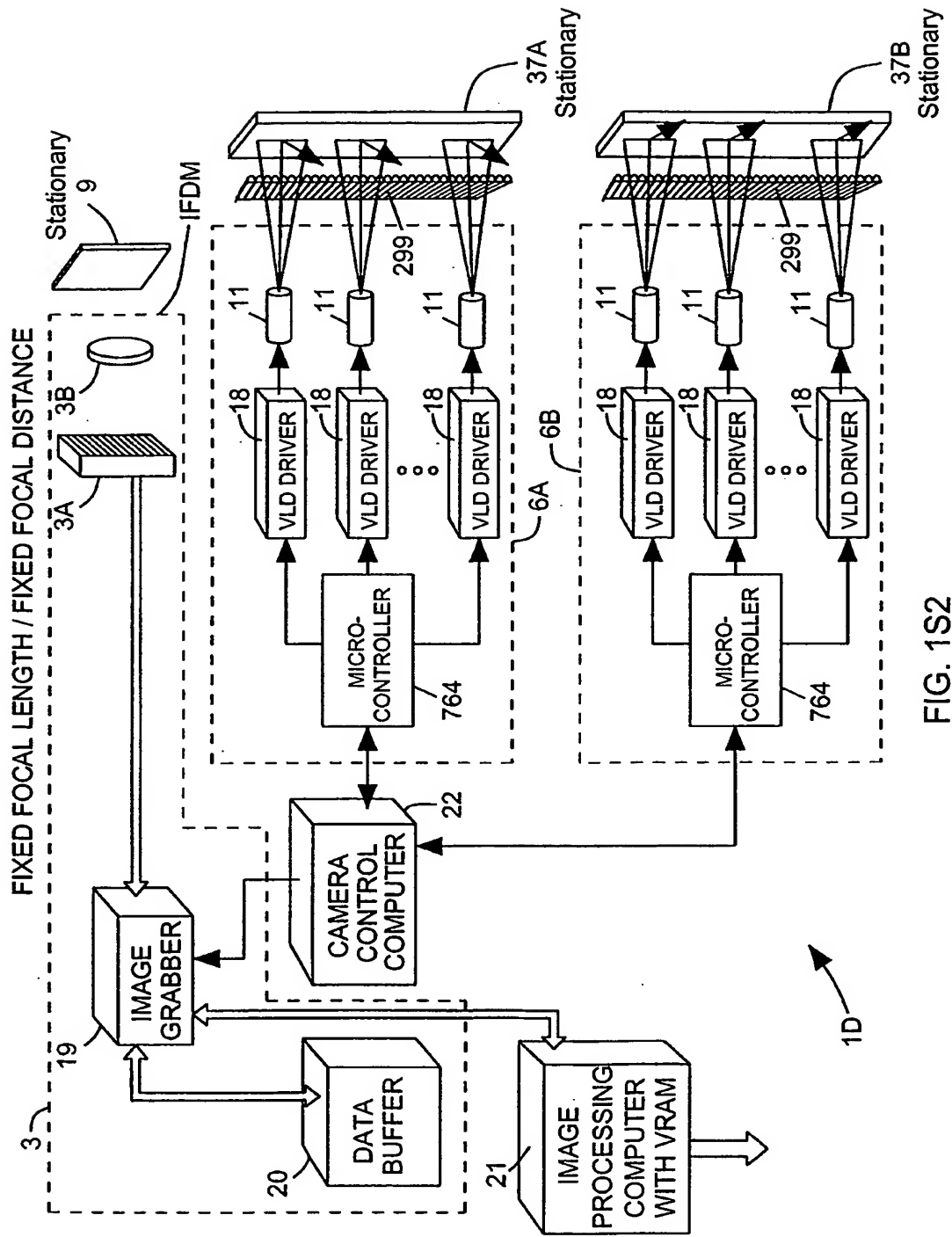


FIG. 1S2

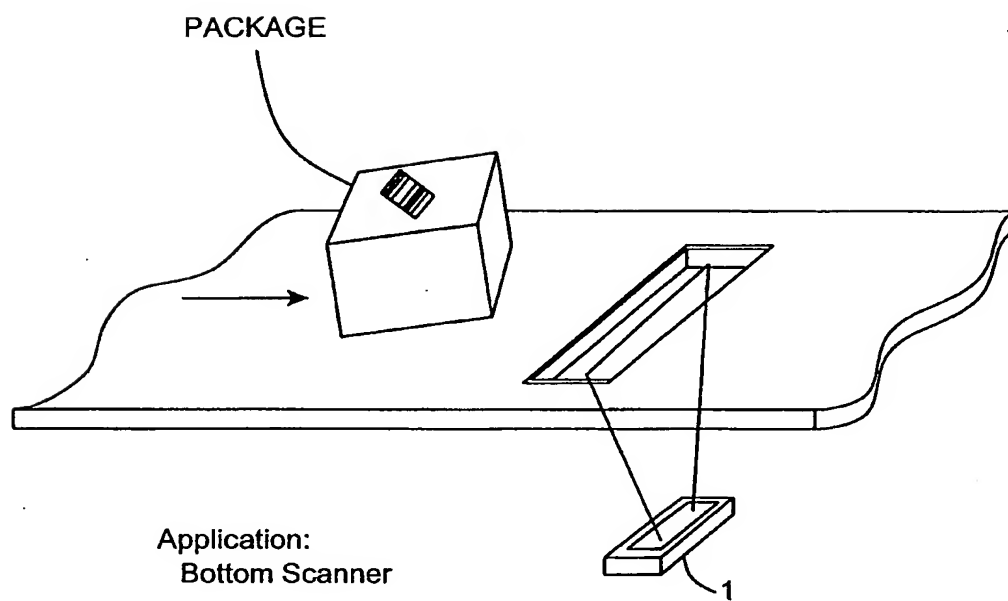


FIG. 1T

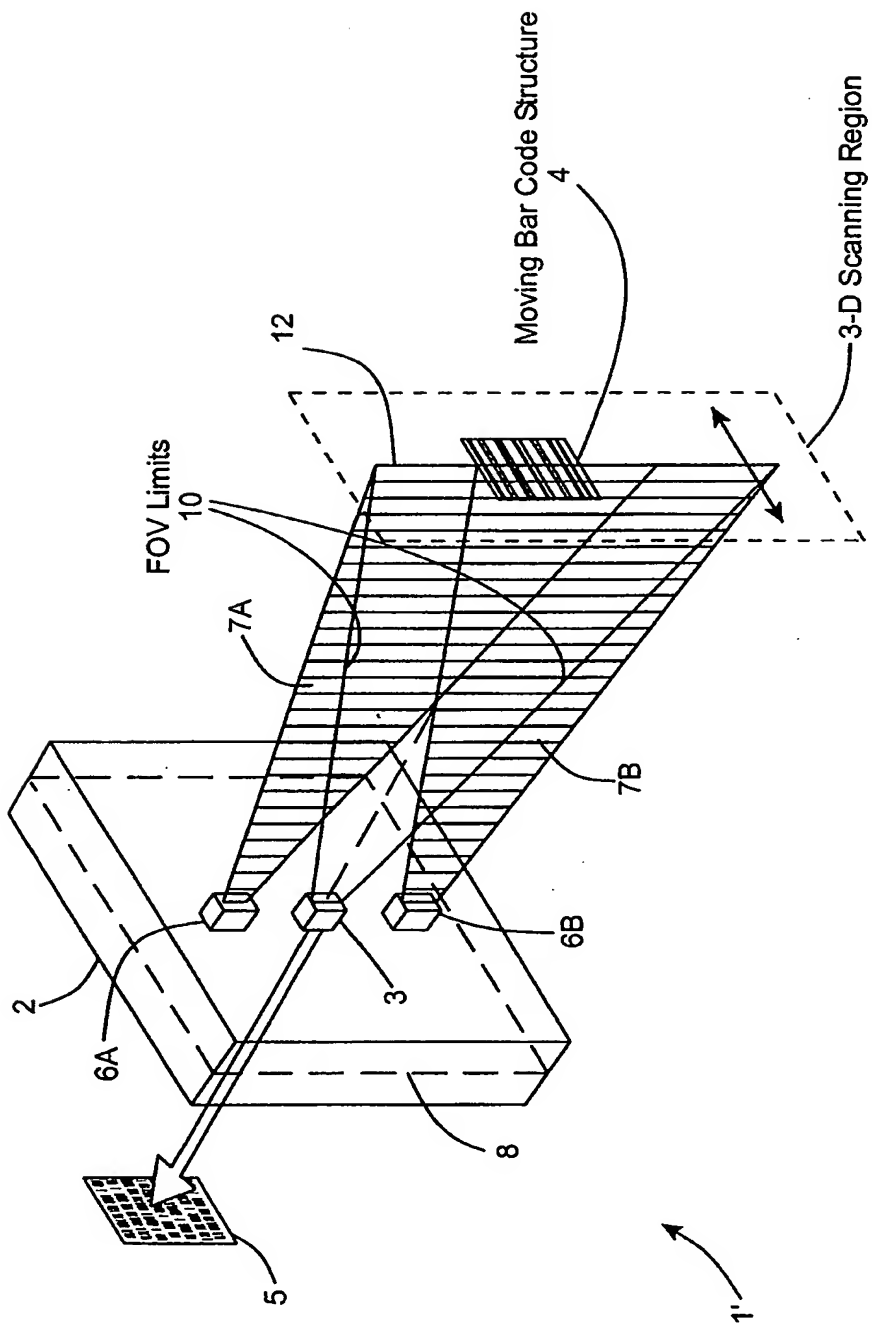


FIG. 1V1

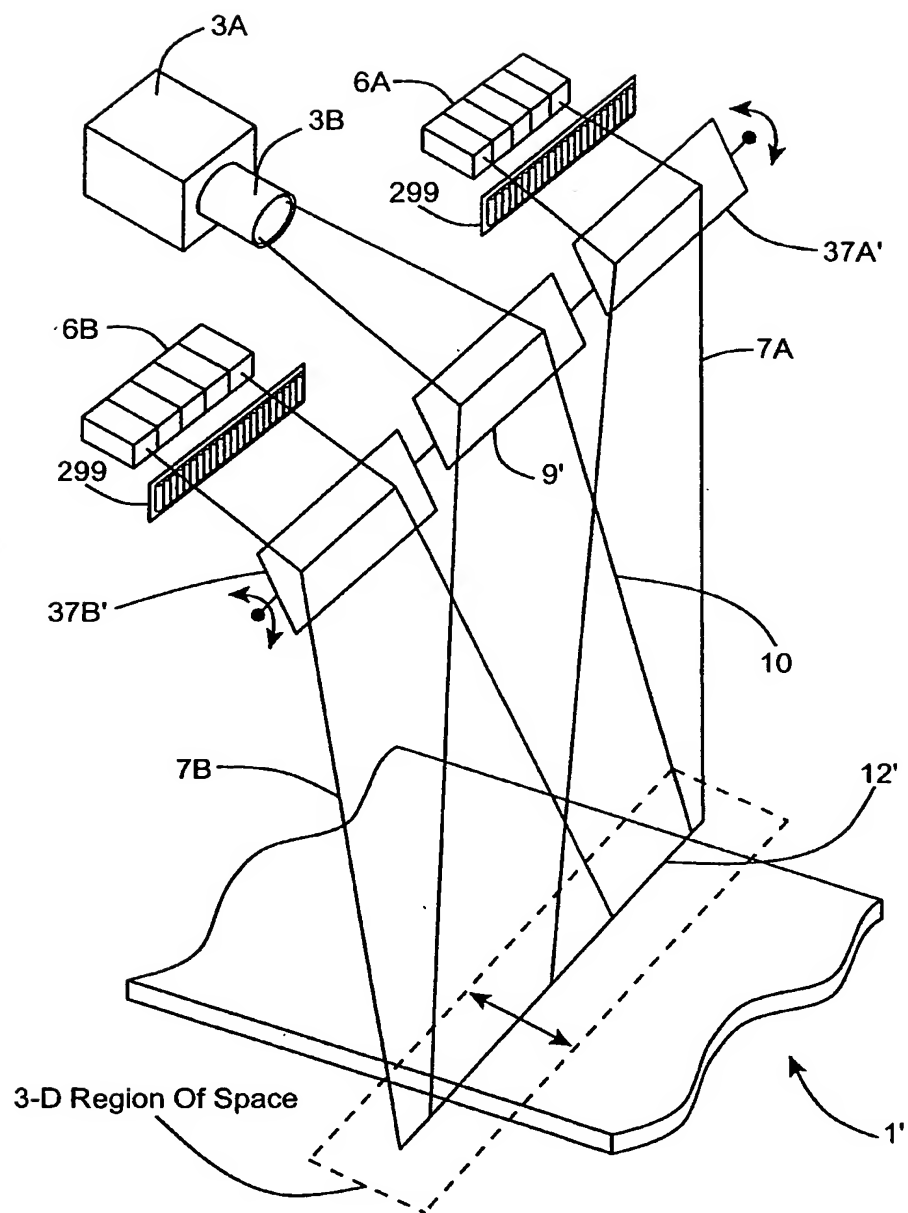


FIG. 1V2

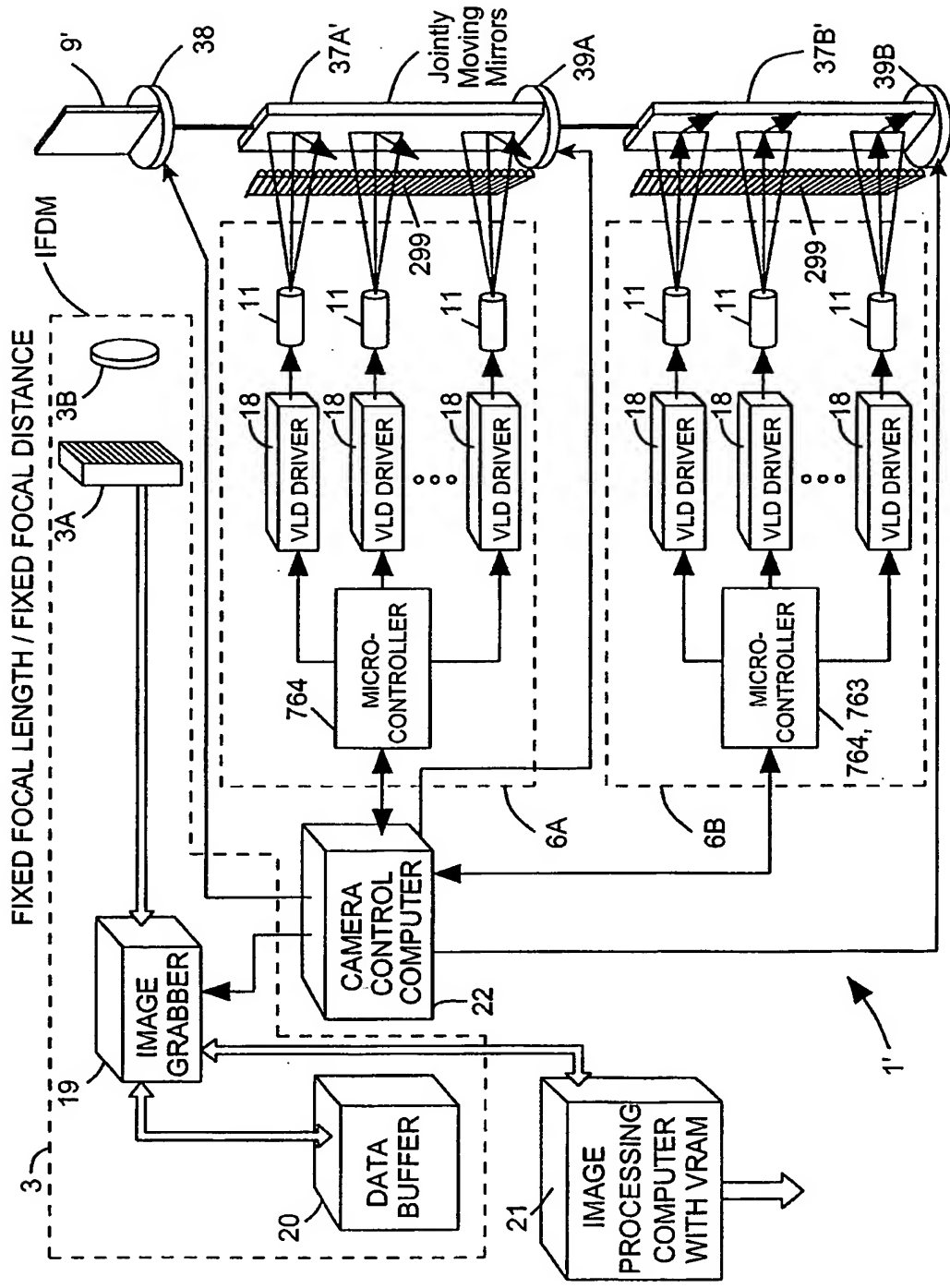


FIG. 1V3

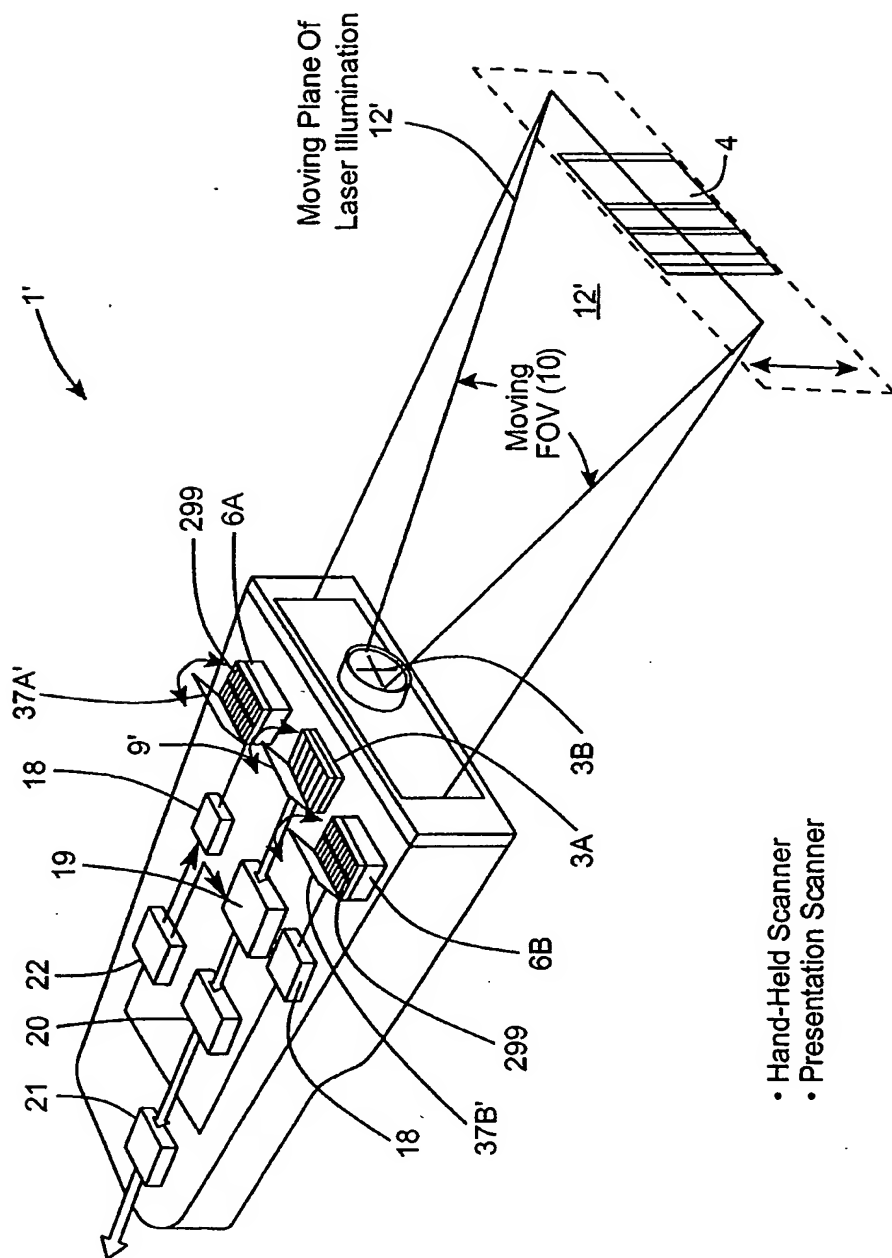


FIG. 1V4

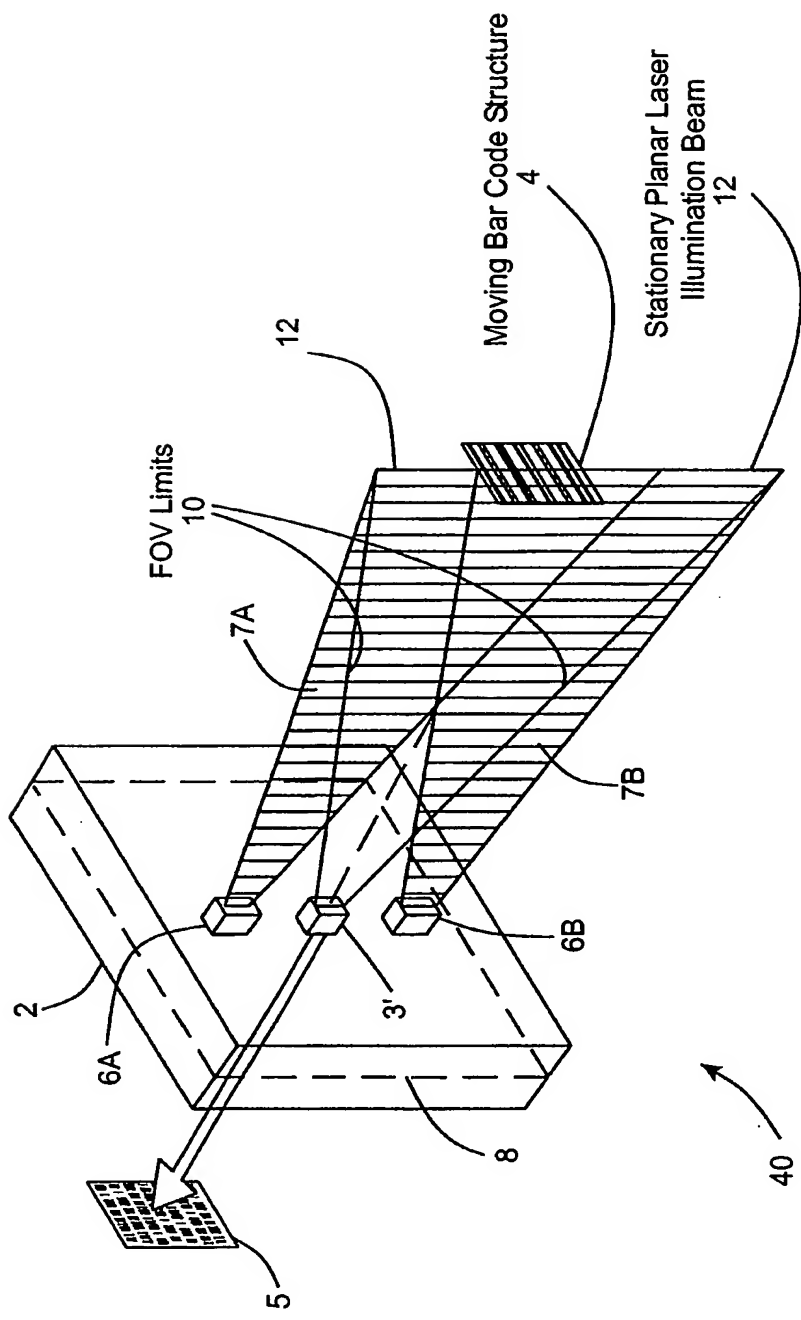


FIG. 2A

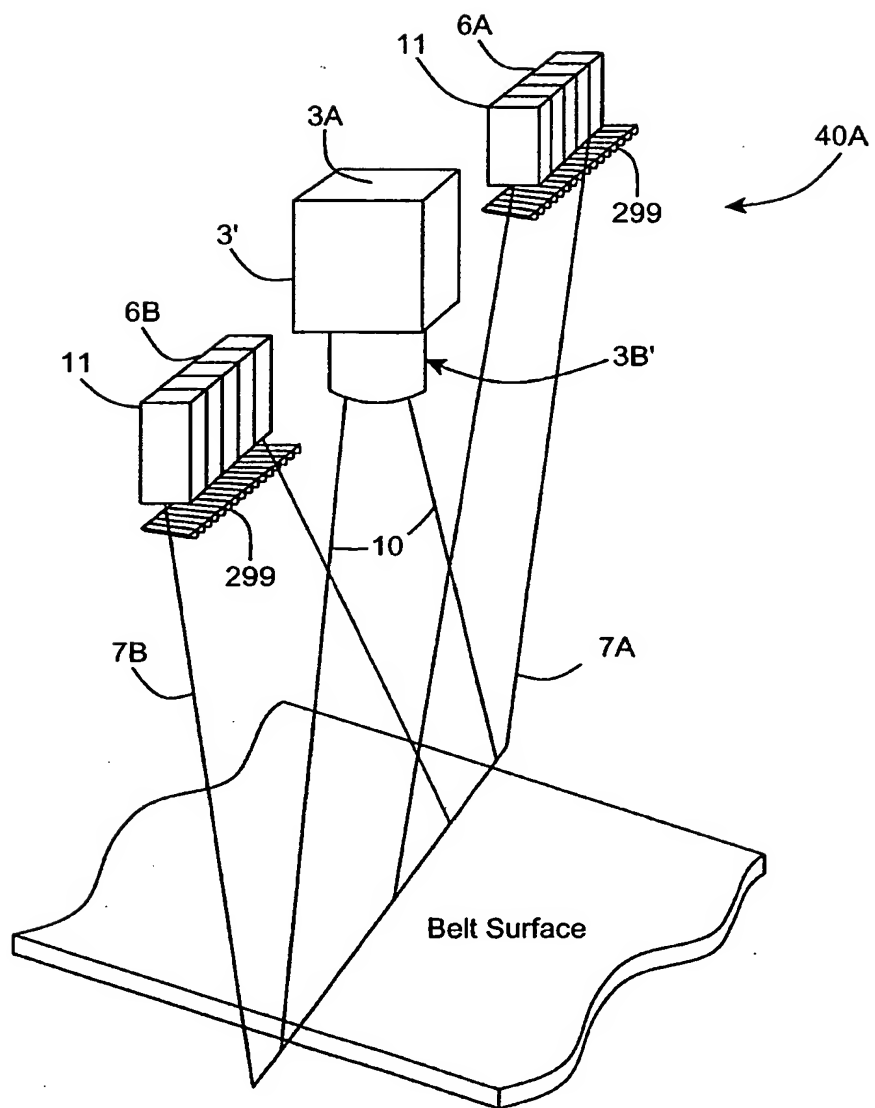
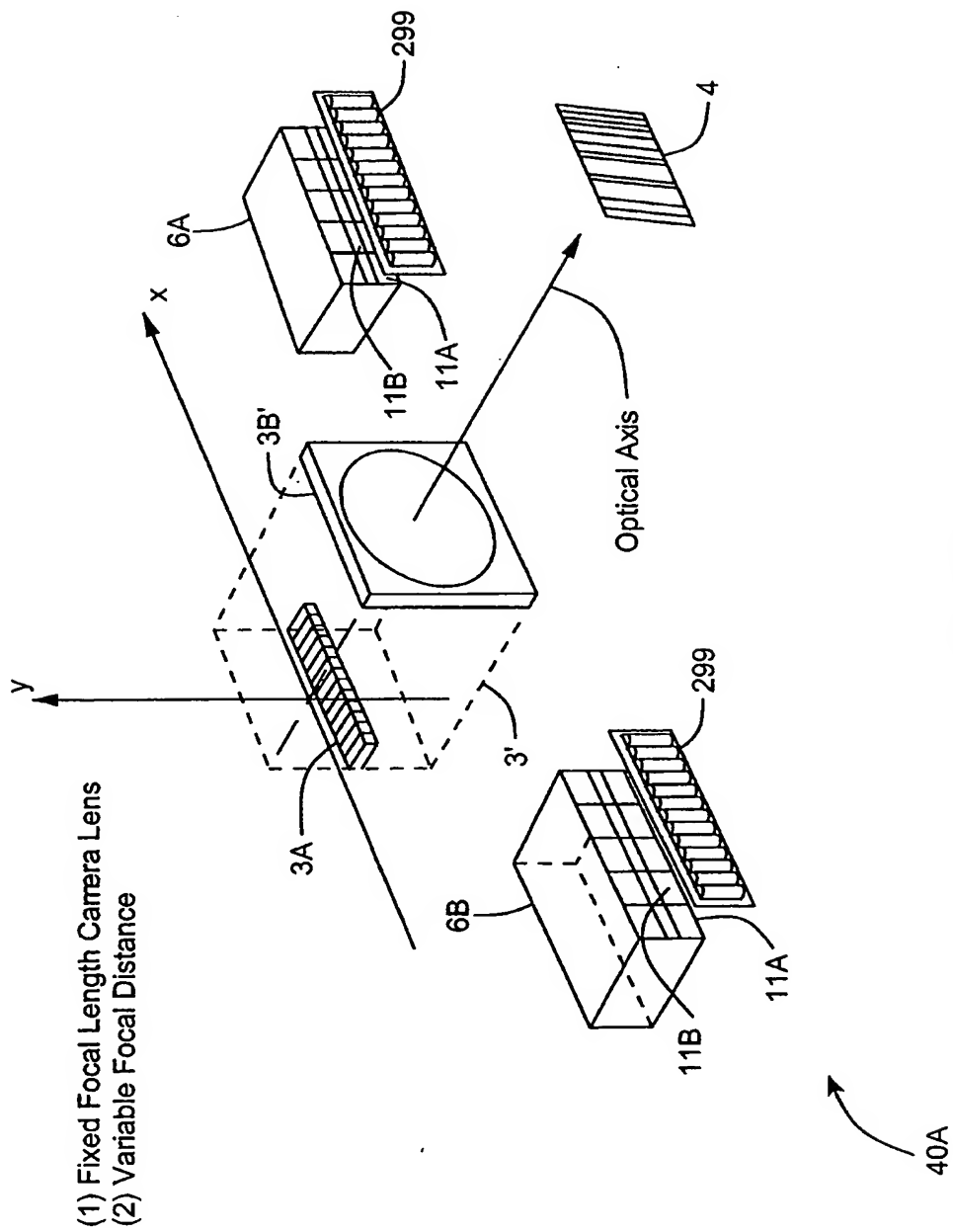


FIG. 2B1



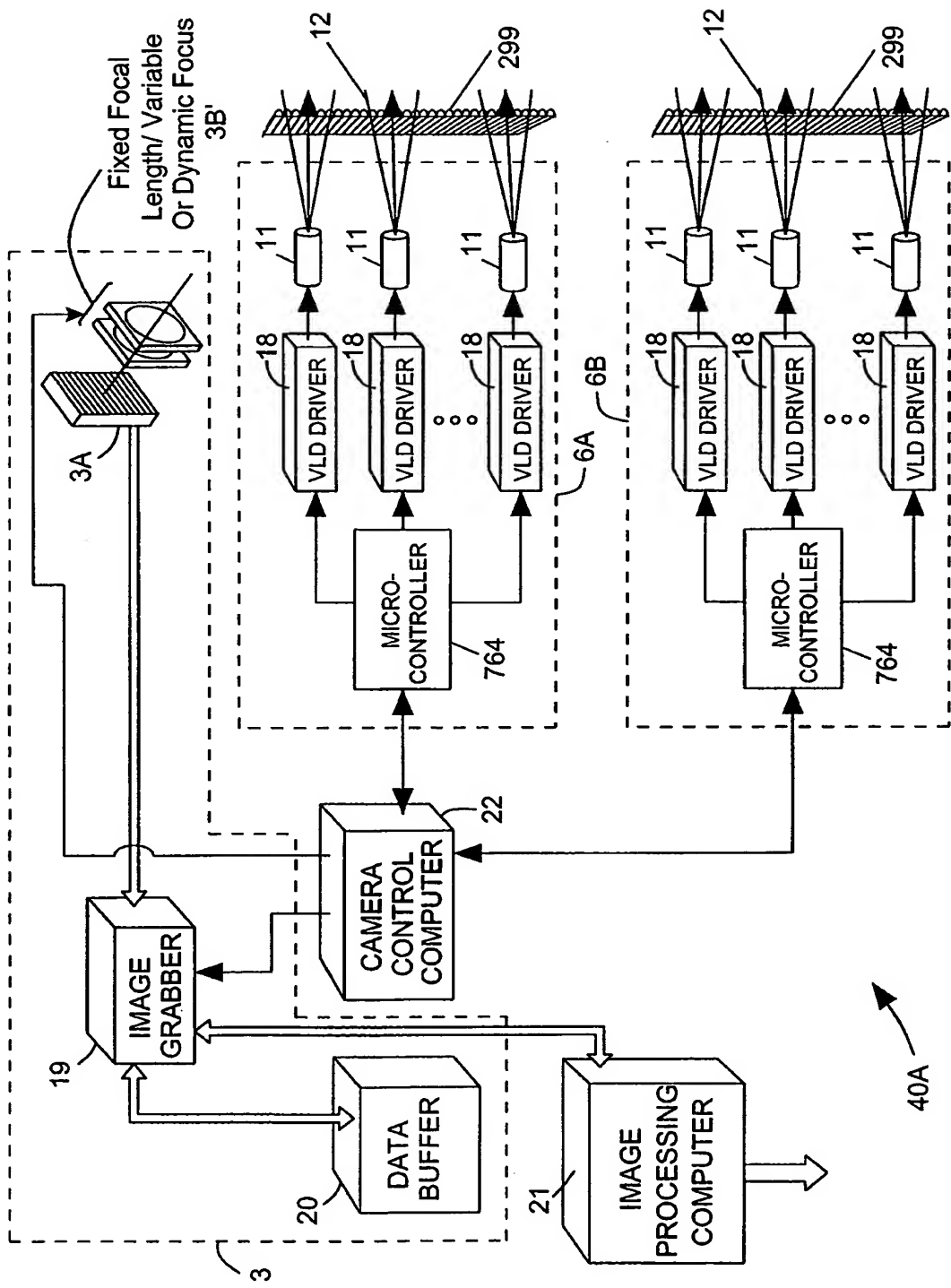


FIG. 2C1

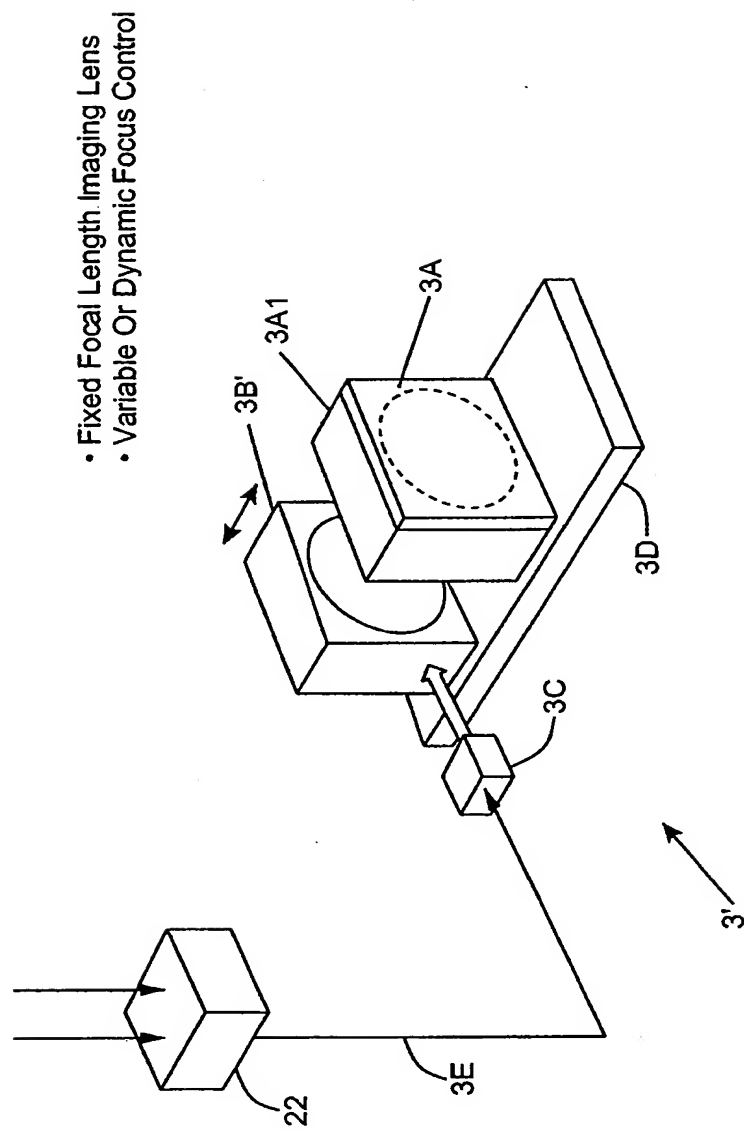


FIG. 2C2

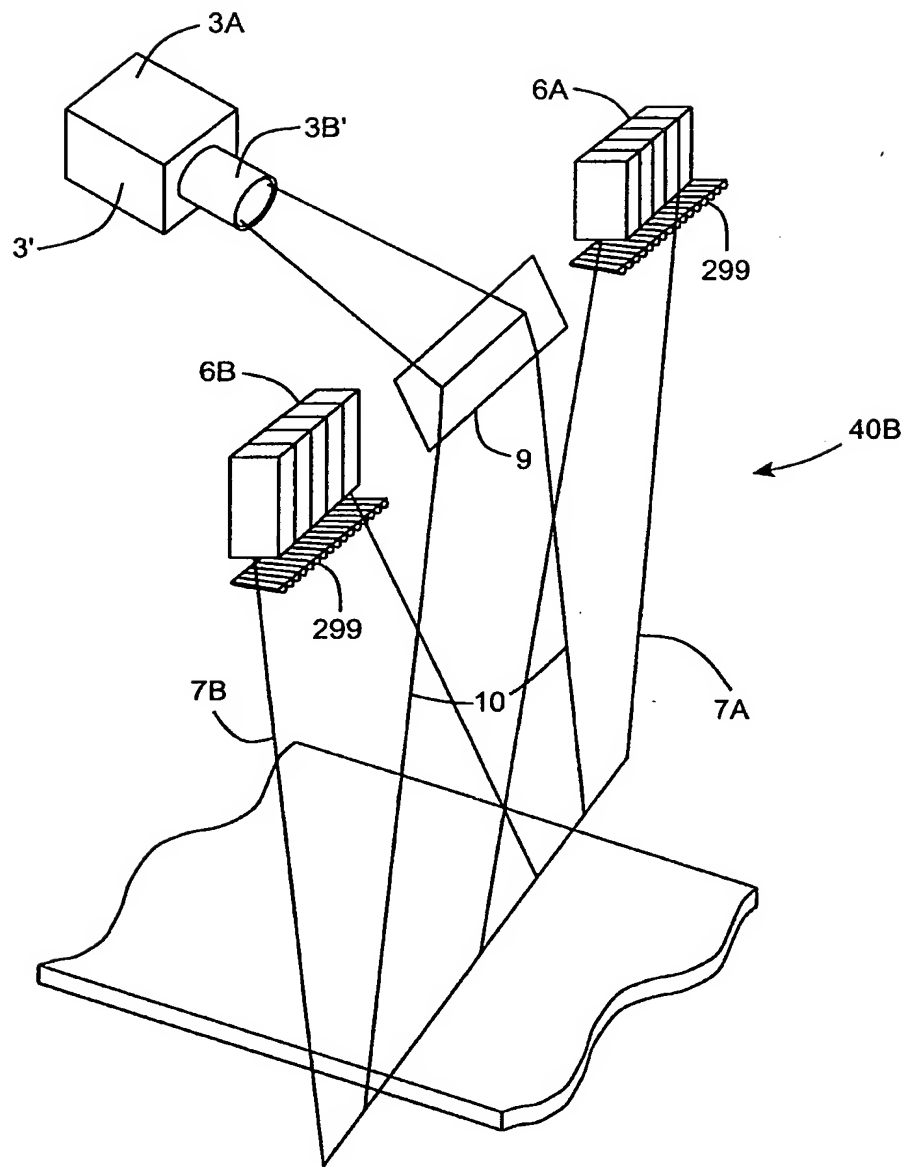


FIG. 2D1

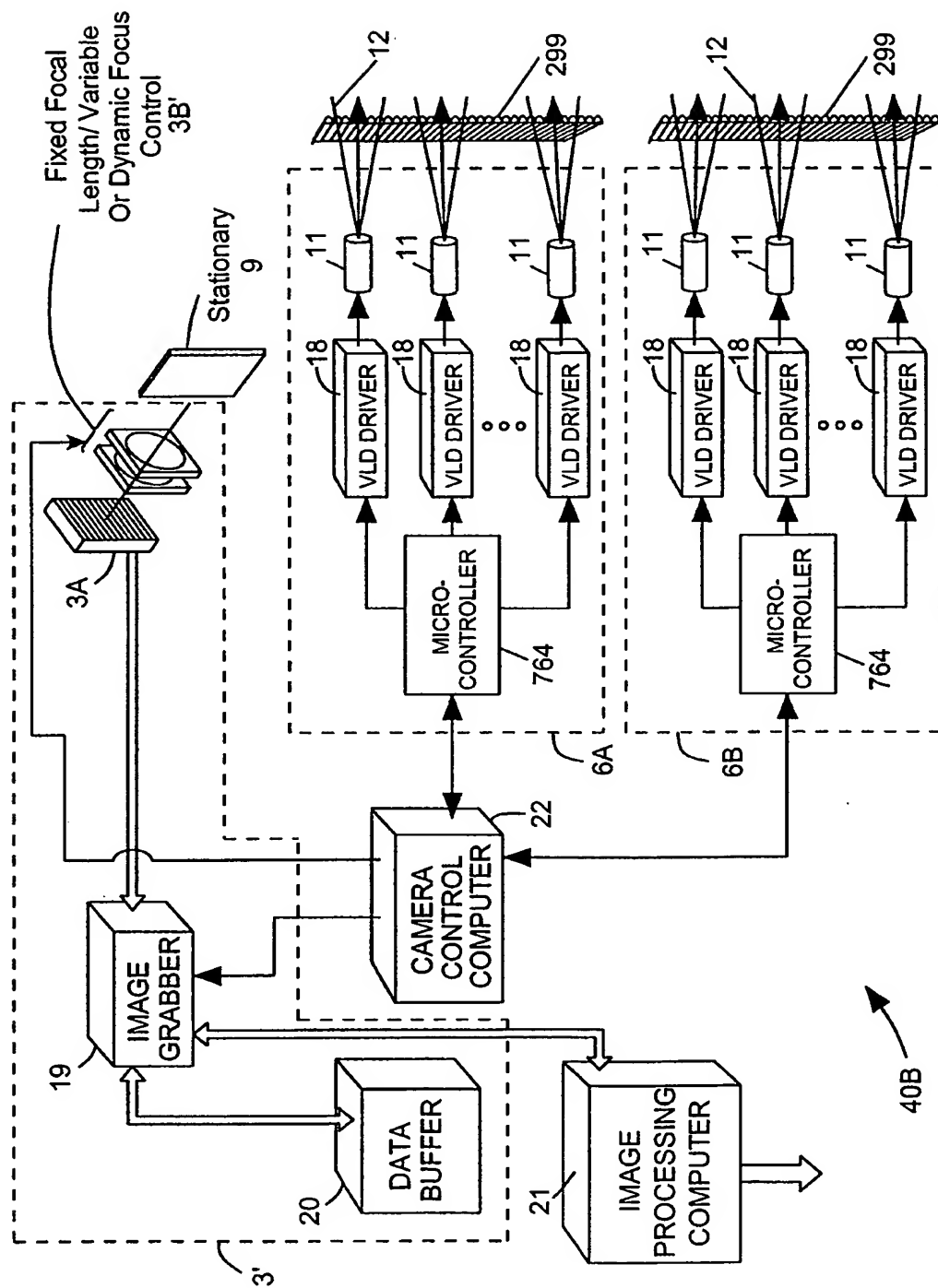


FIG. 2D2

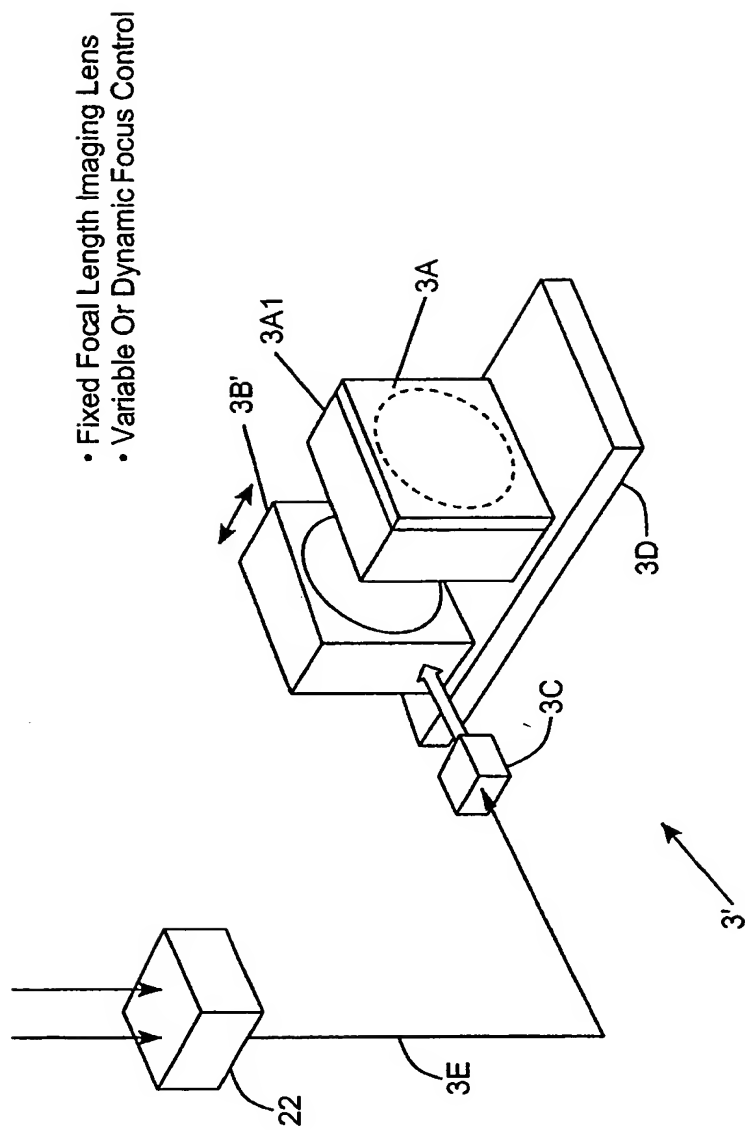


FIG. 2D3

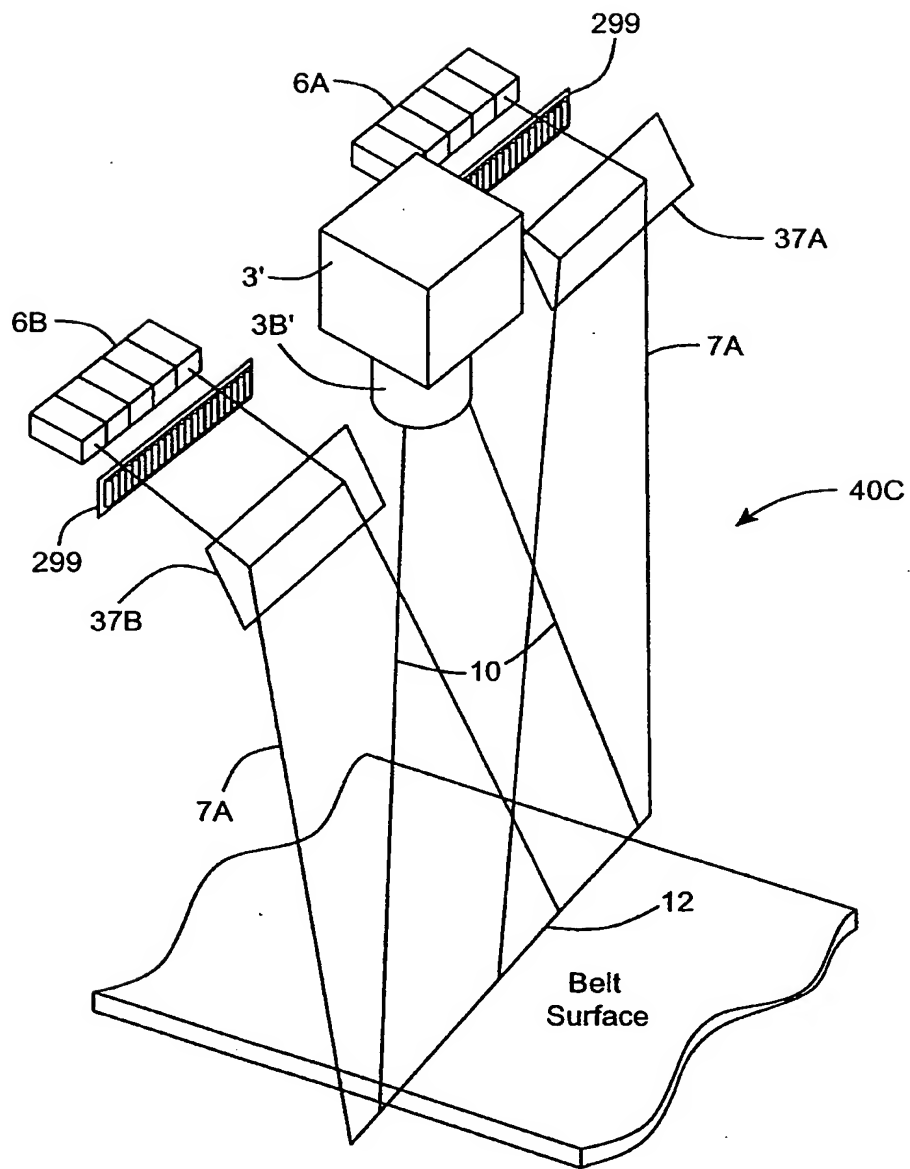


FIG. 2E1

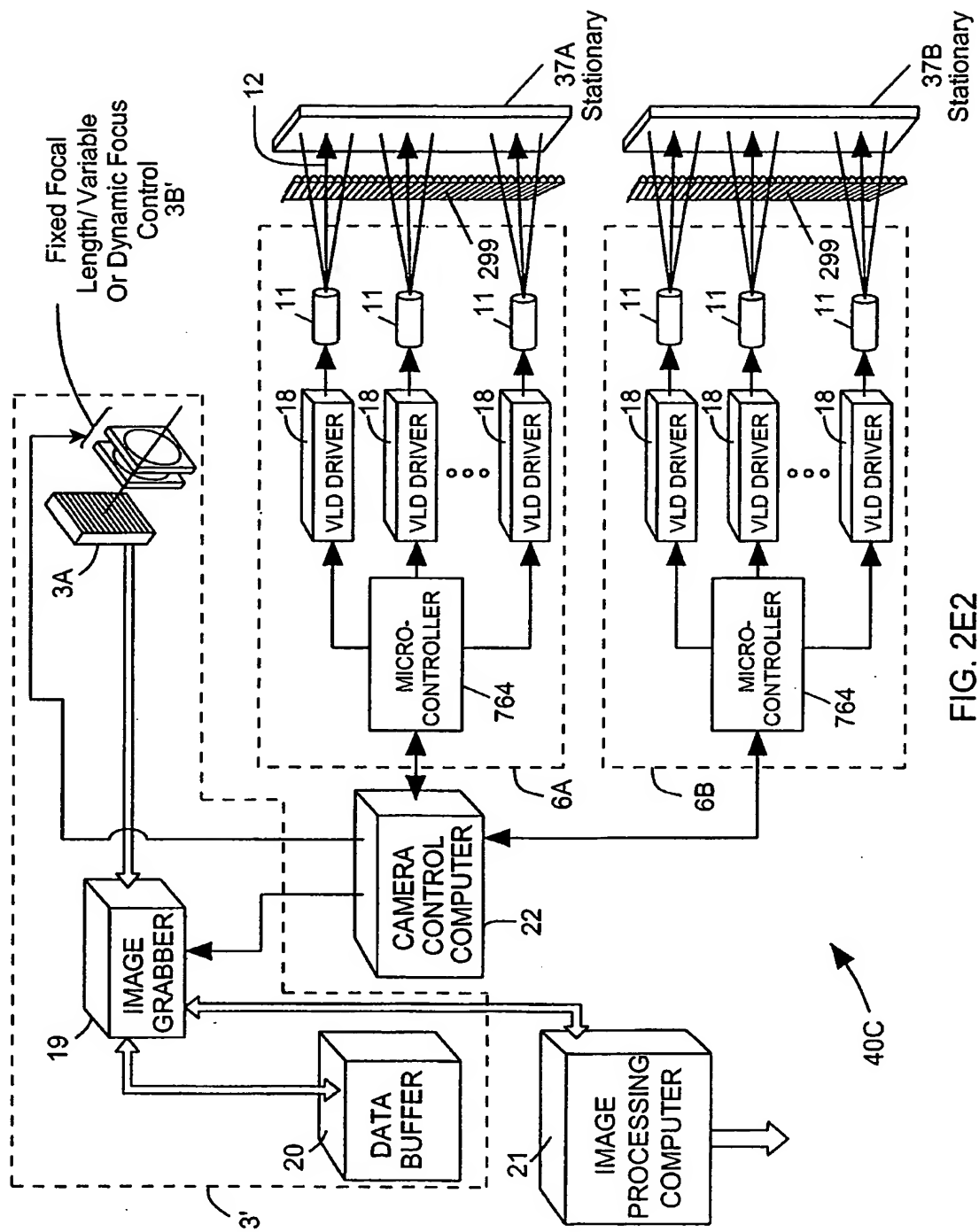


FIG. 2E2

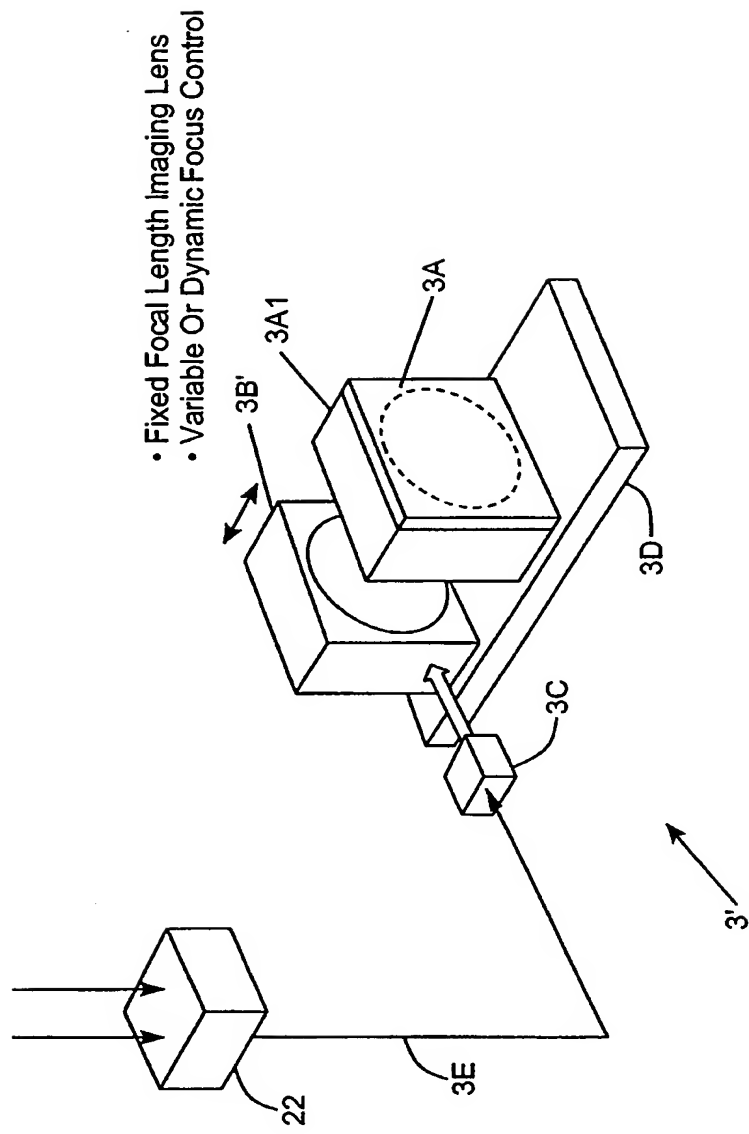


FIG. 2E3

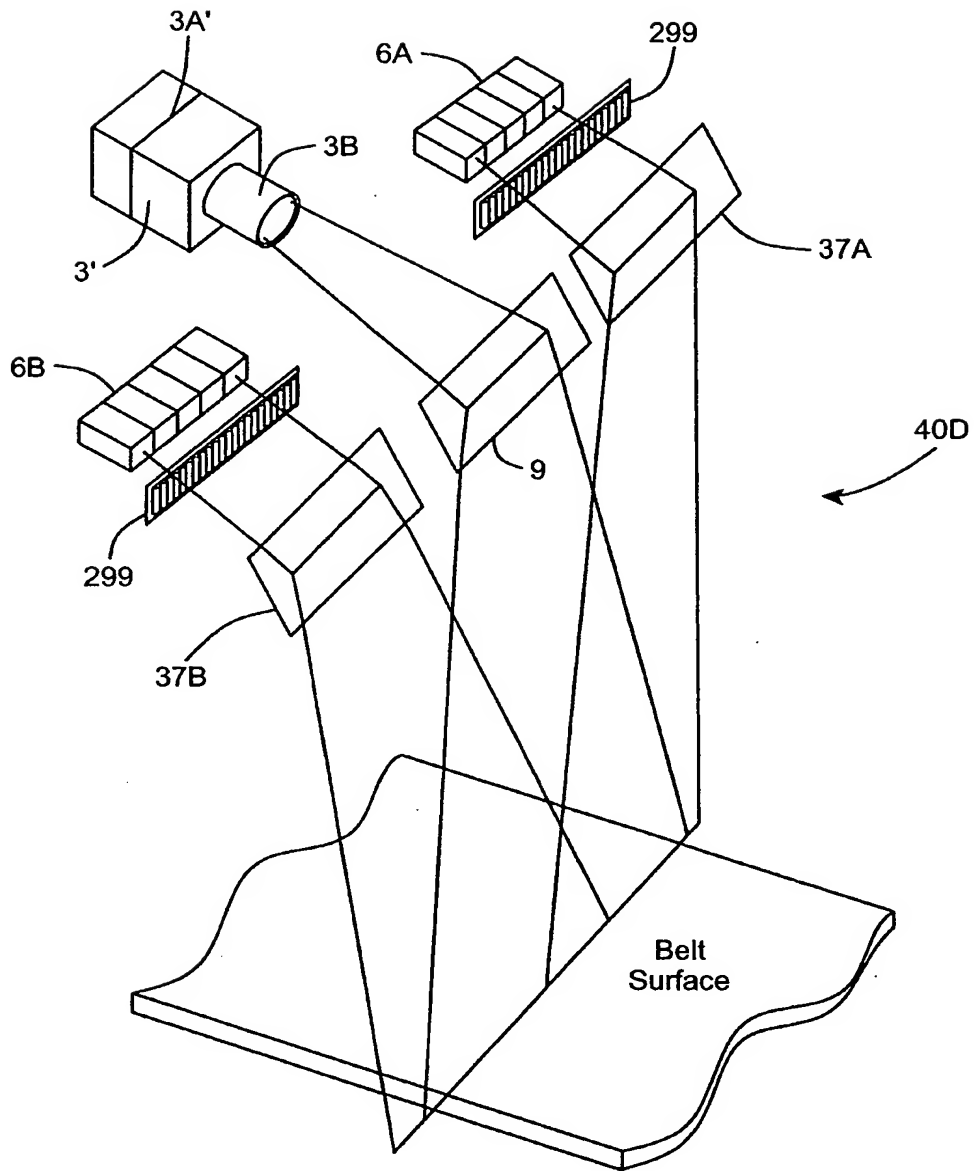


FIG. 2F1

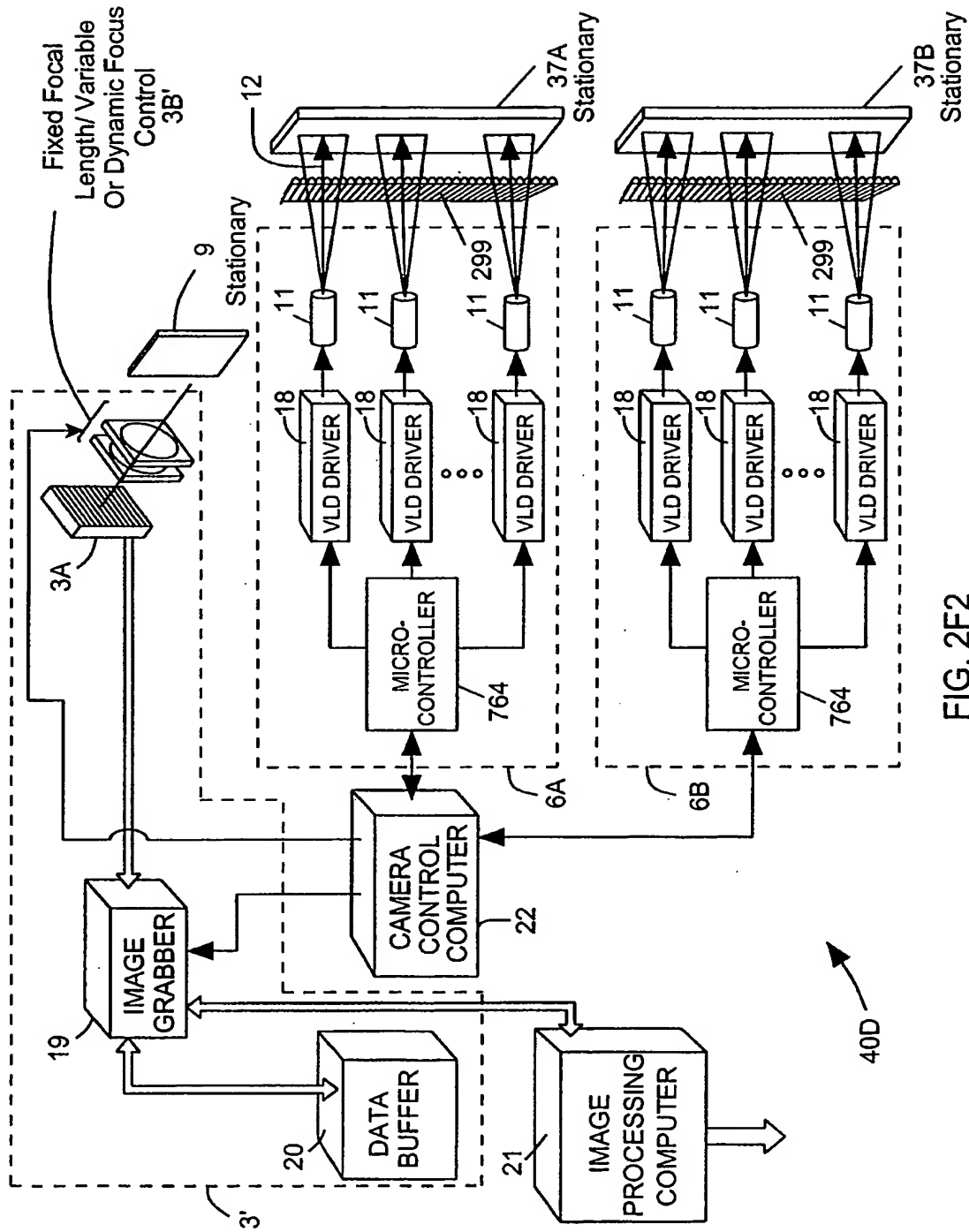


FIG. 2F2

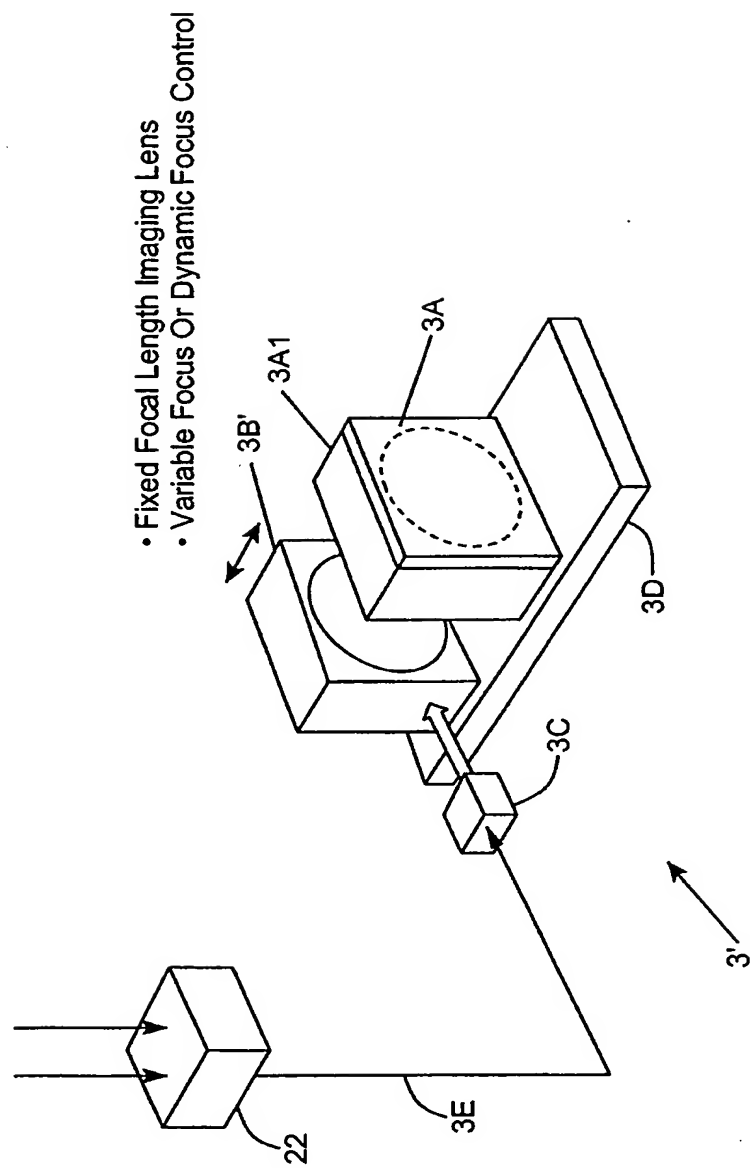


FIG. 2F3

Top Conveyor Scanner:

- Fixed Focal Length Imaging Lens
- Variable Focal Distance Control

Side Conveyor Scanner:

- Fixed Focal Length Imaging Lens
- Dynamic Focal Distance Control

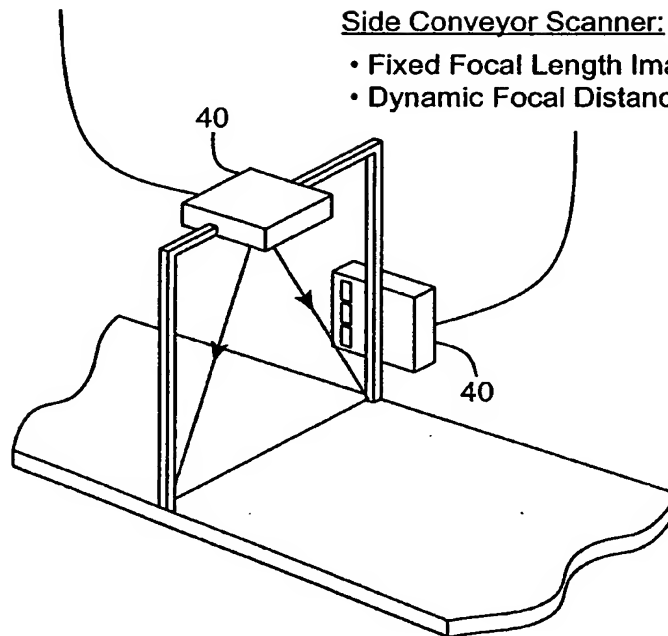


FIG. 2G

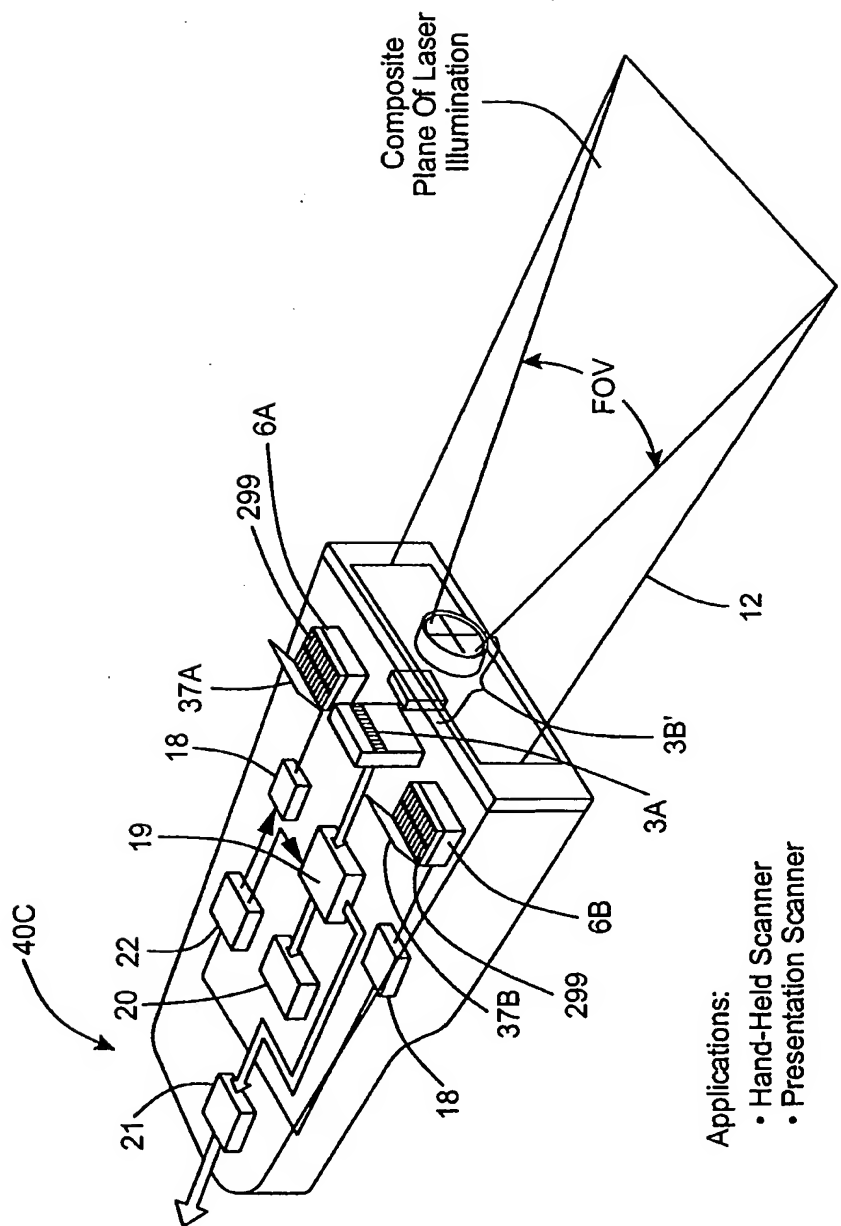


FIG. 2H

- Applications:
- Hand-Held Scanner
 - Presentation Scanner

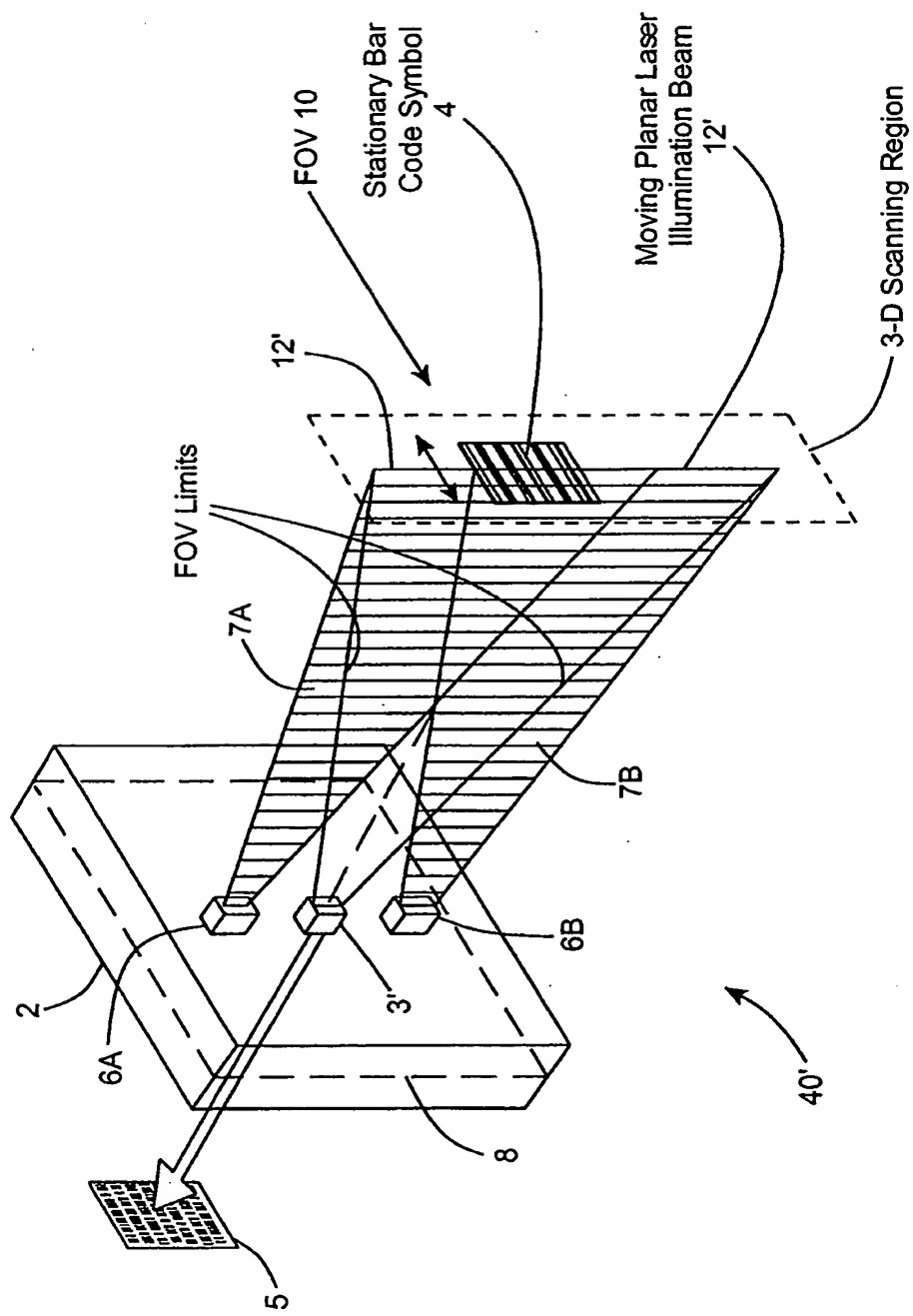


FIG. 211

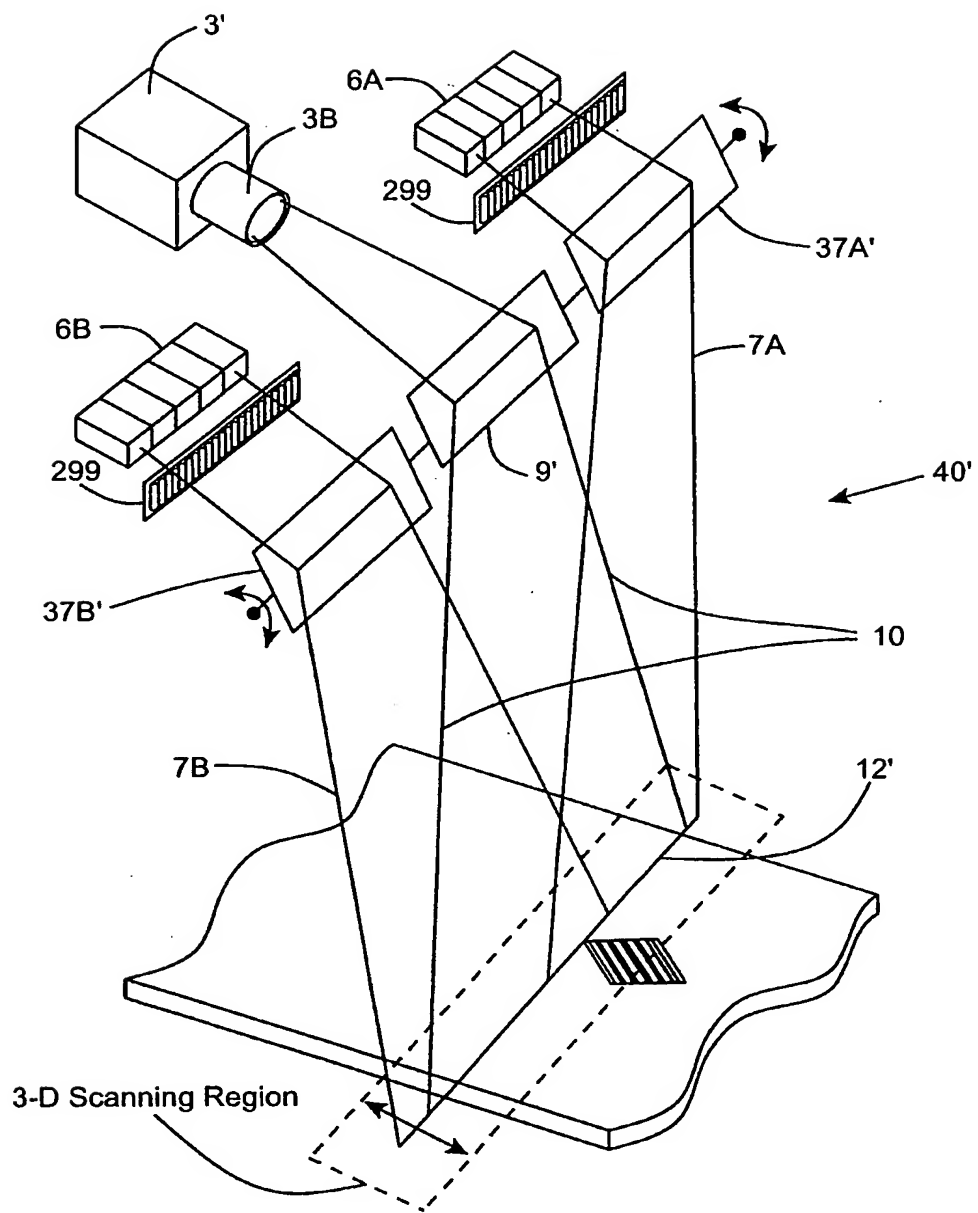


FIG. 212

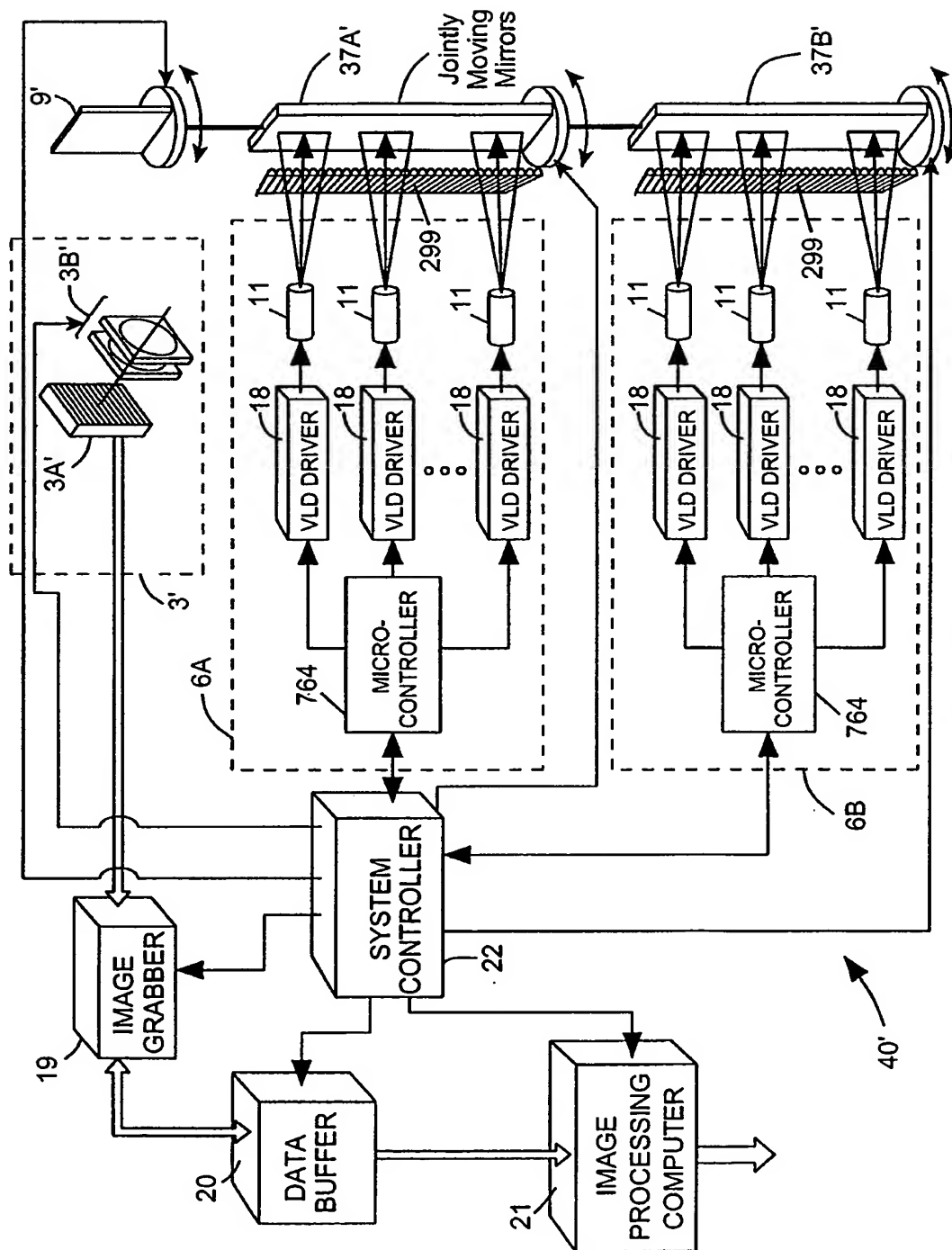


FIG. 213

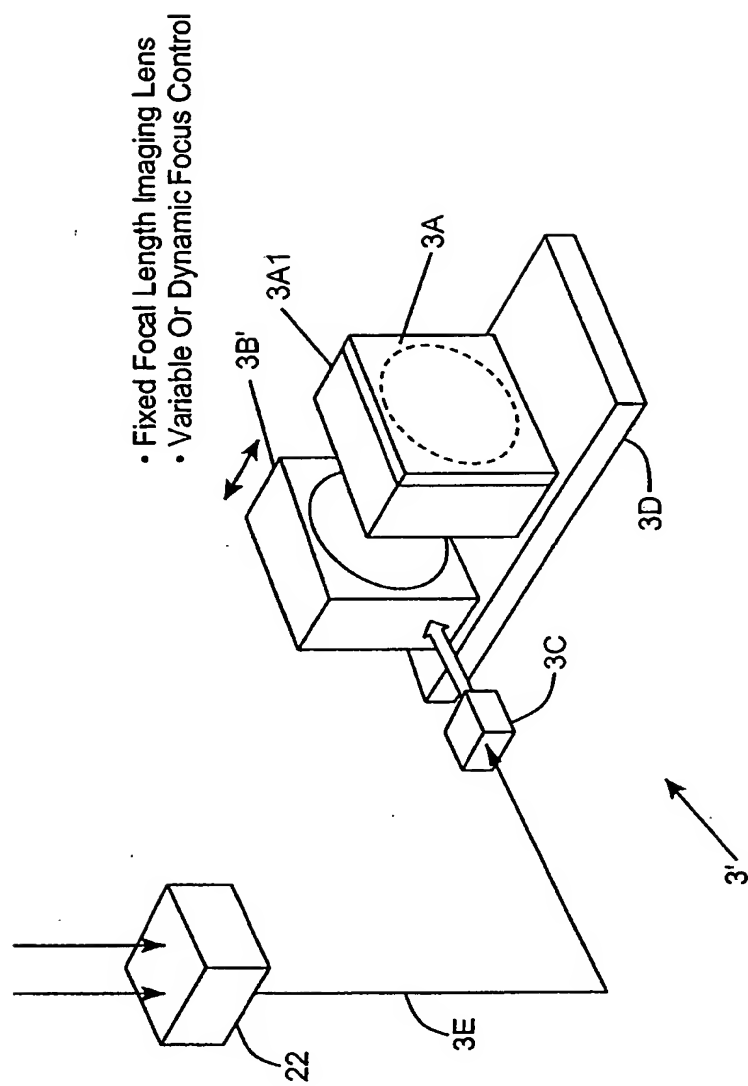


FIG. 214

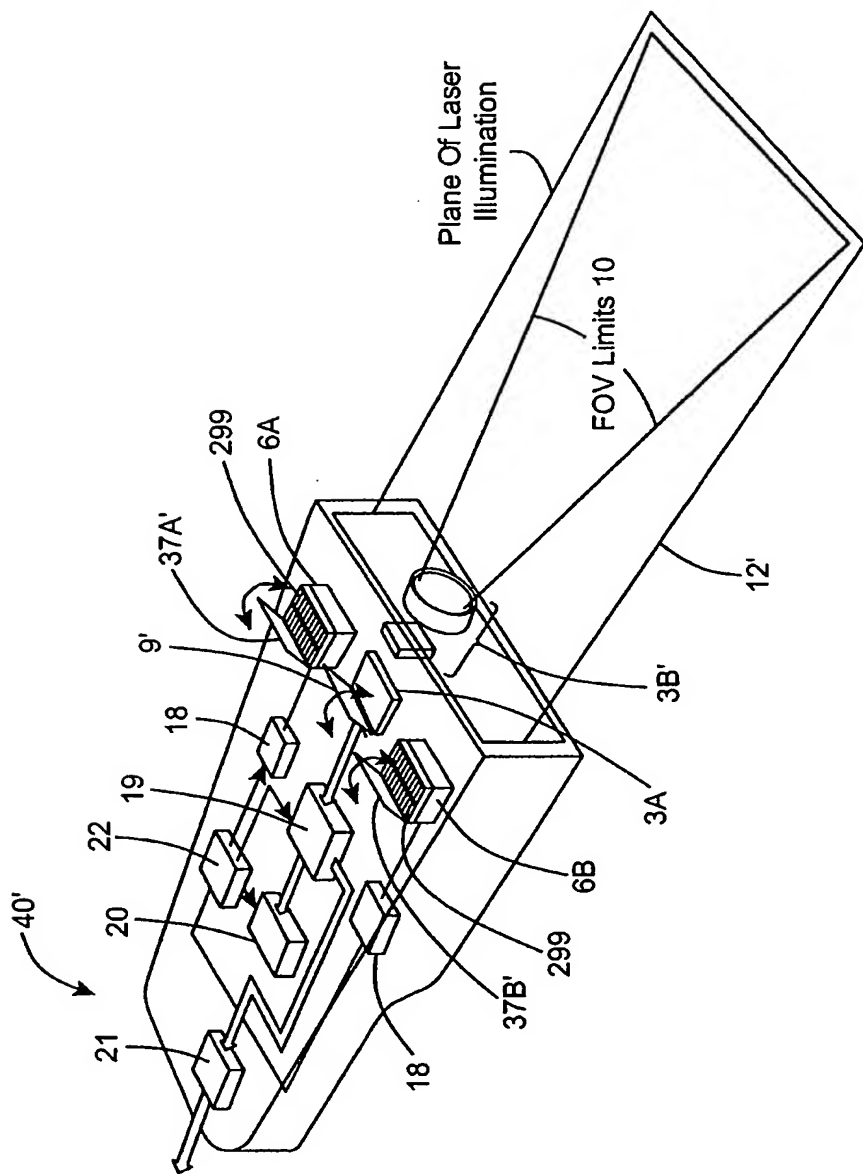


FIG. 215

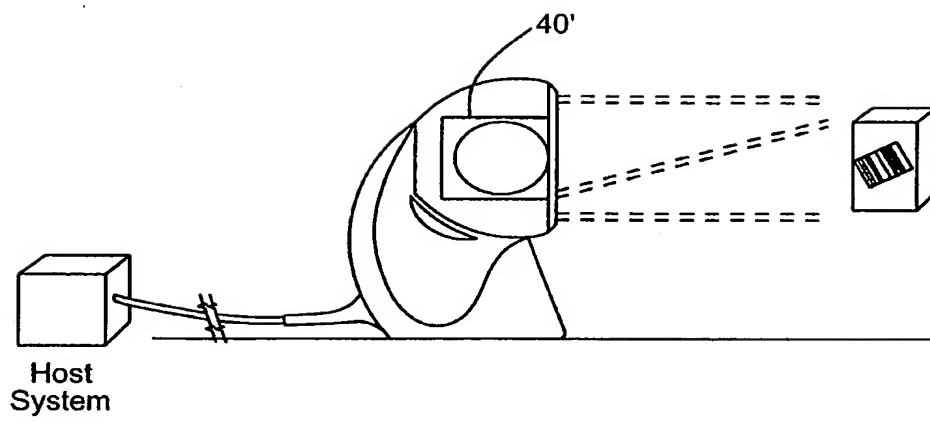


FIG. 216

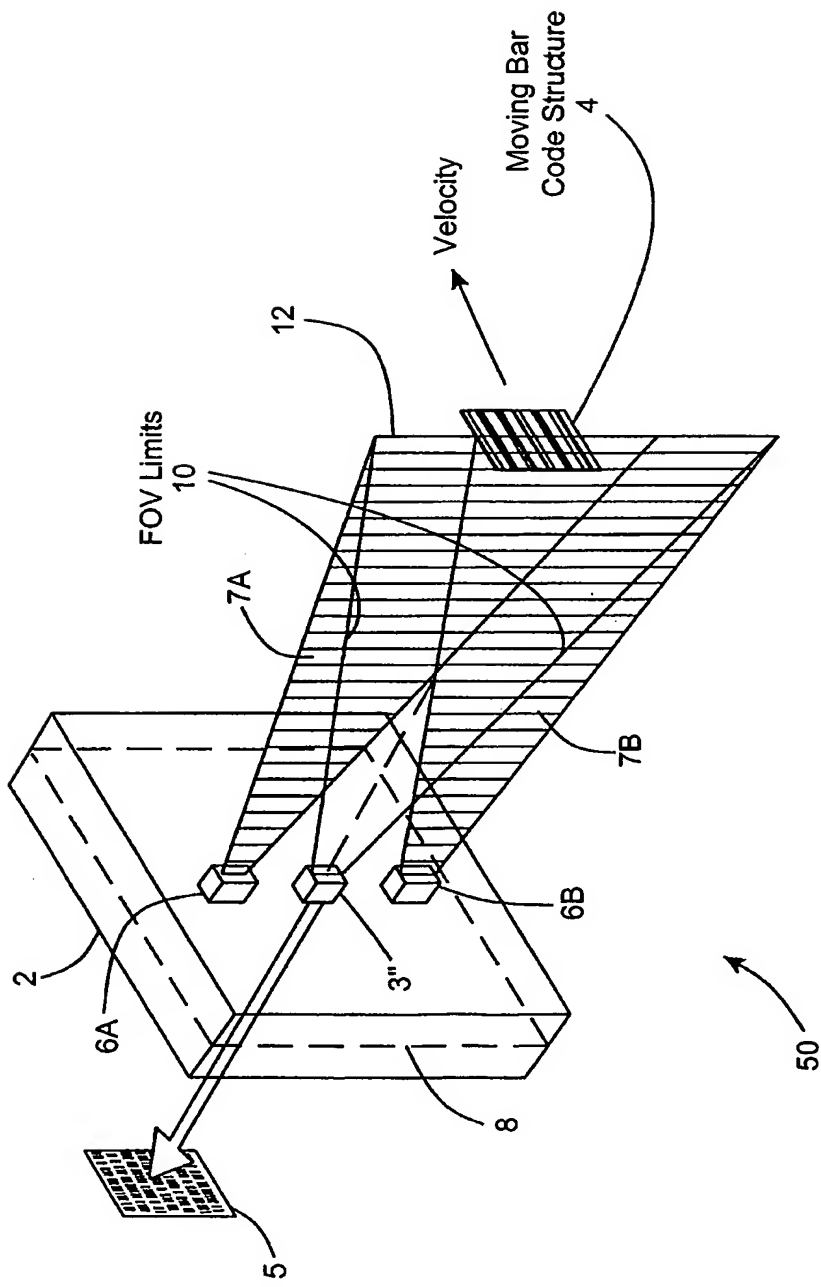


FIG. 3A

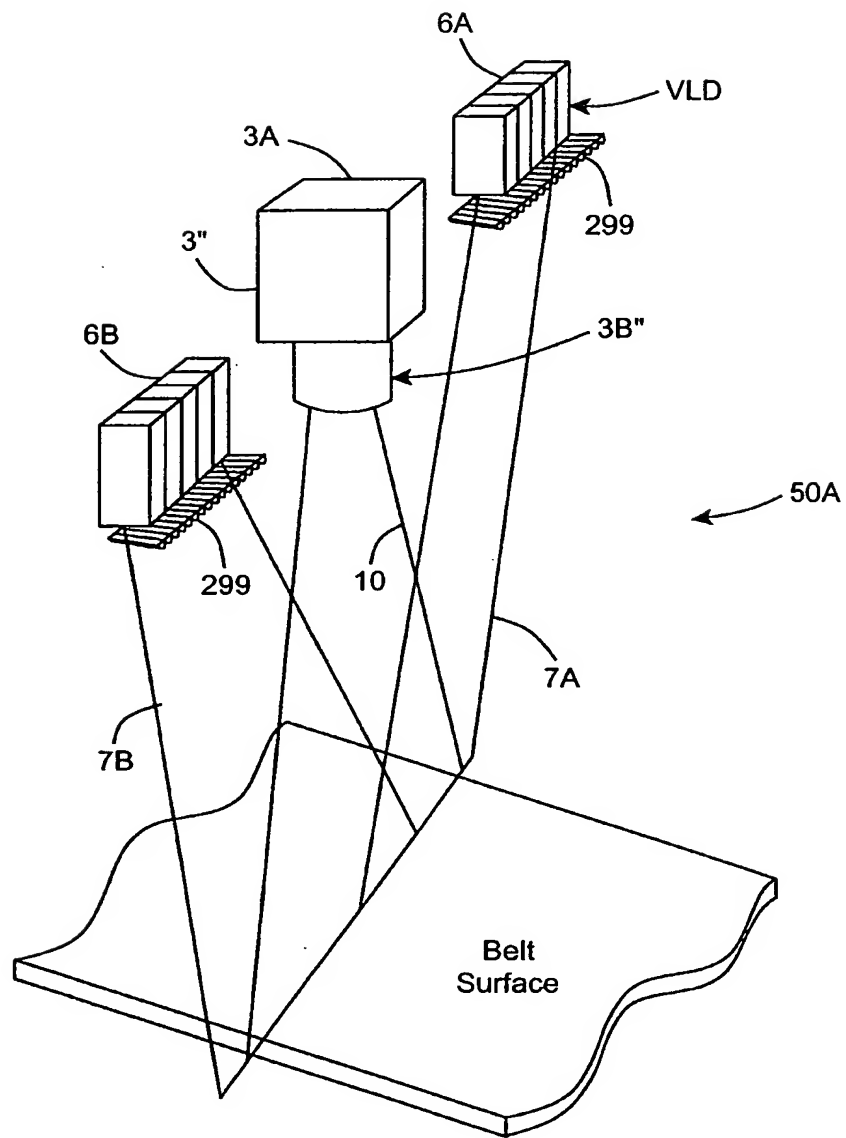


FIG. 3B1

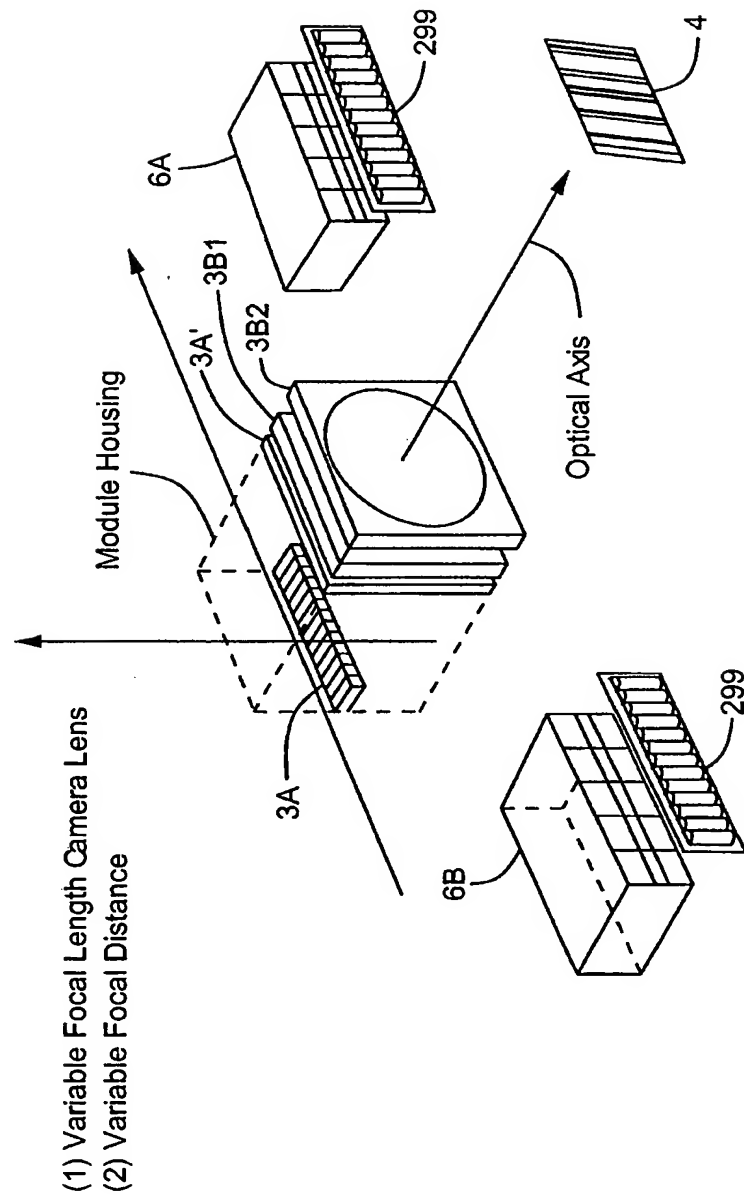


FIG. 3B2

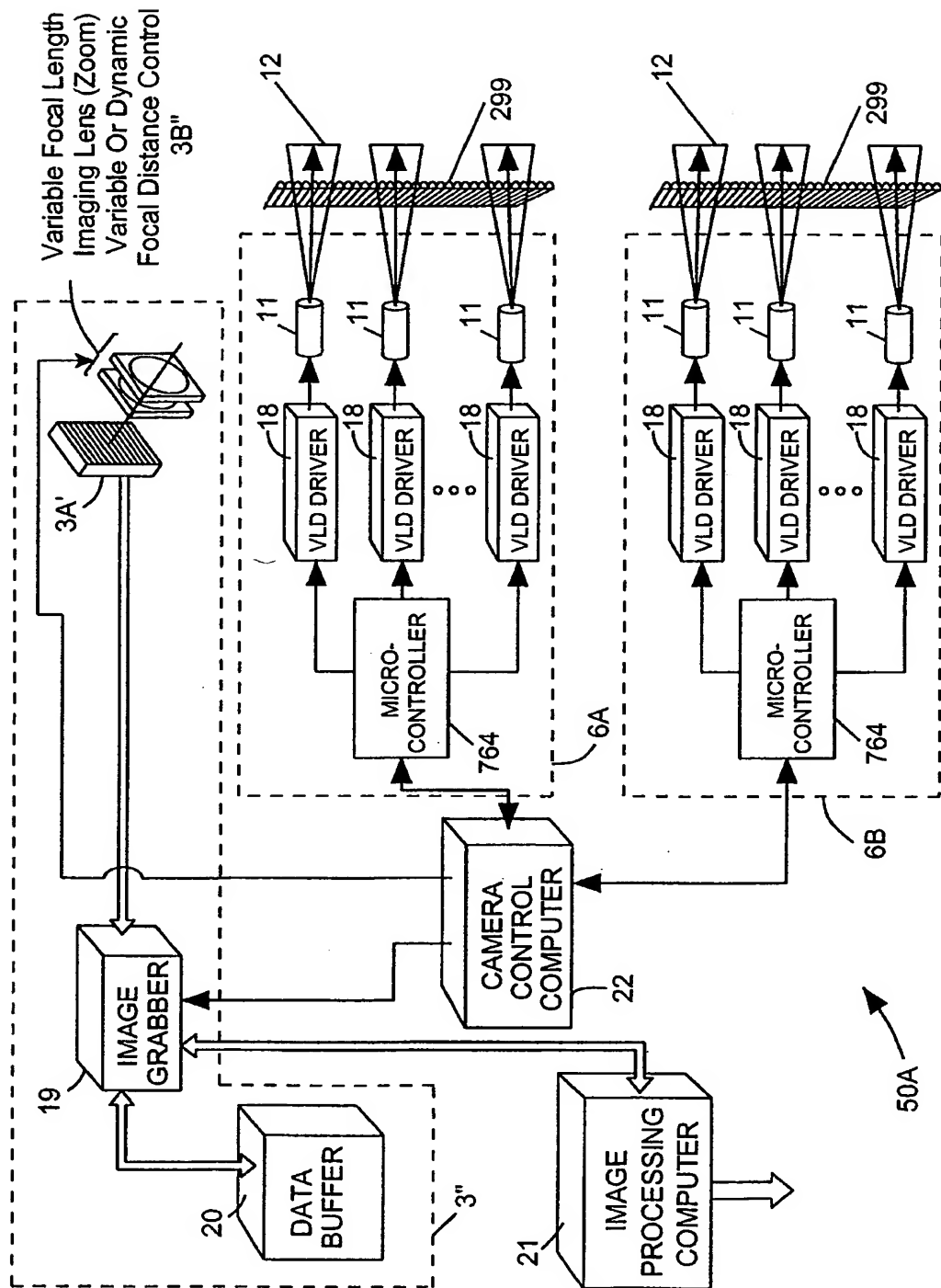


FIG. 3C1

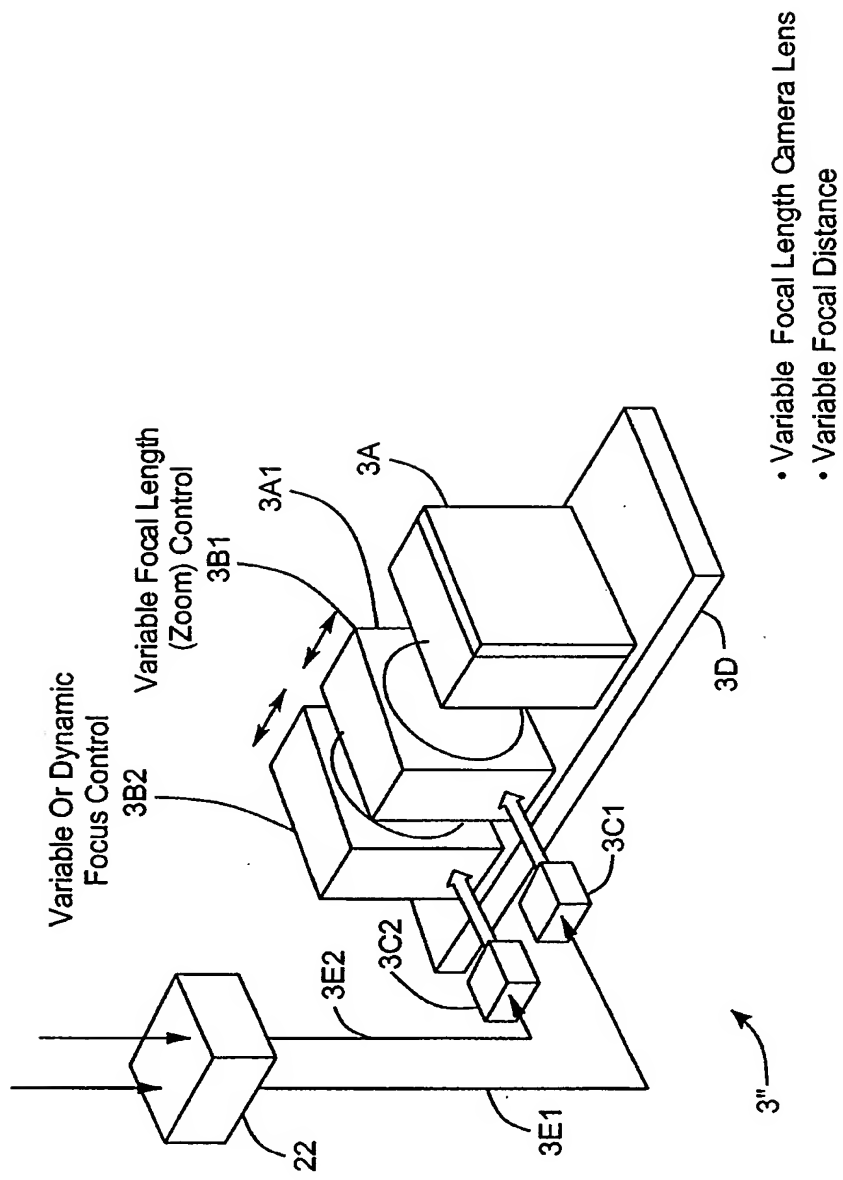


FIG. 3C2

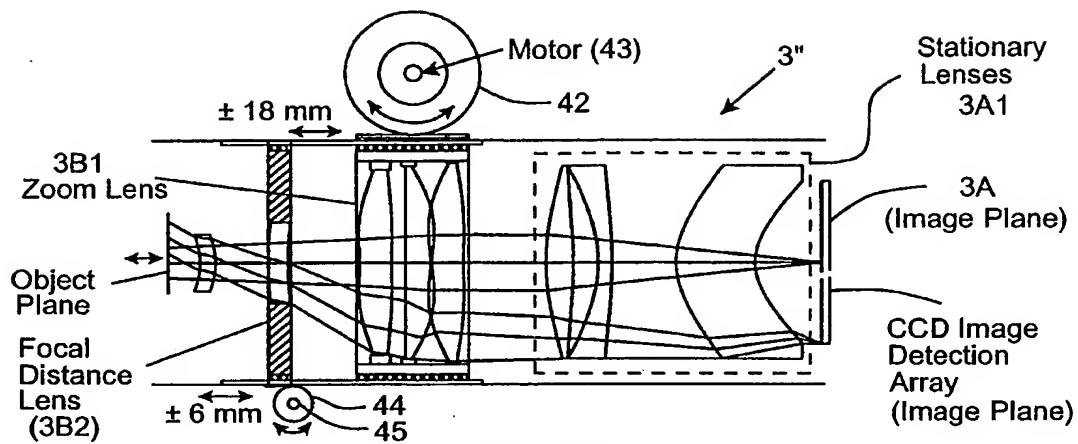


FIG. 3D1

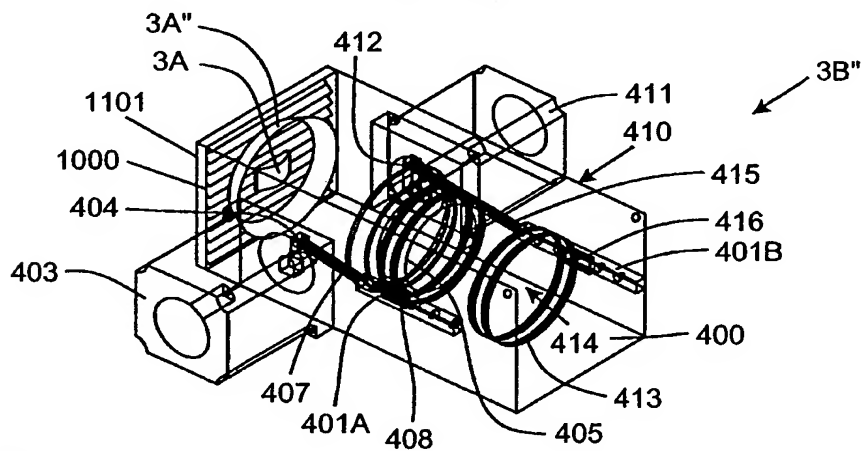


FIG. 3D2

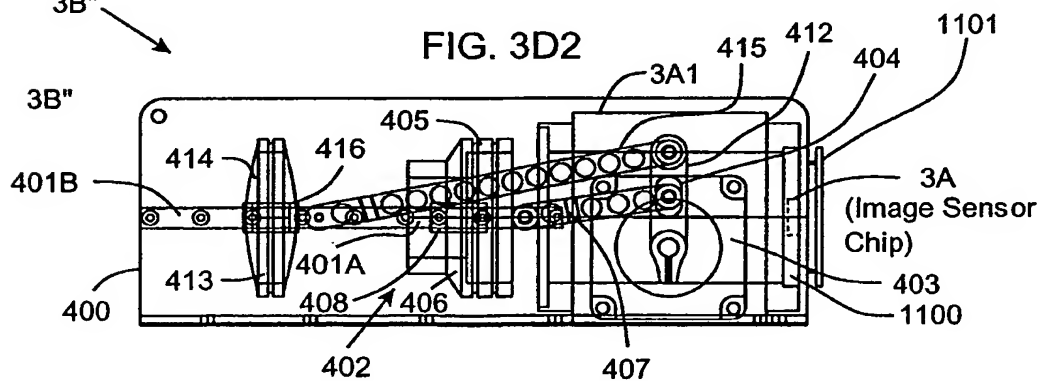


FIG. 3D3

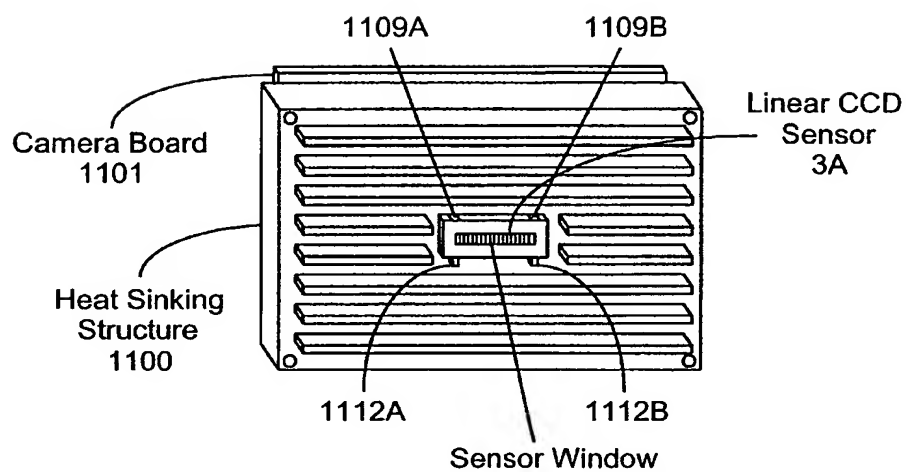


FIG. 3D4

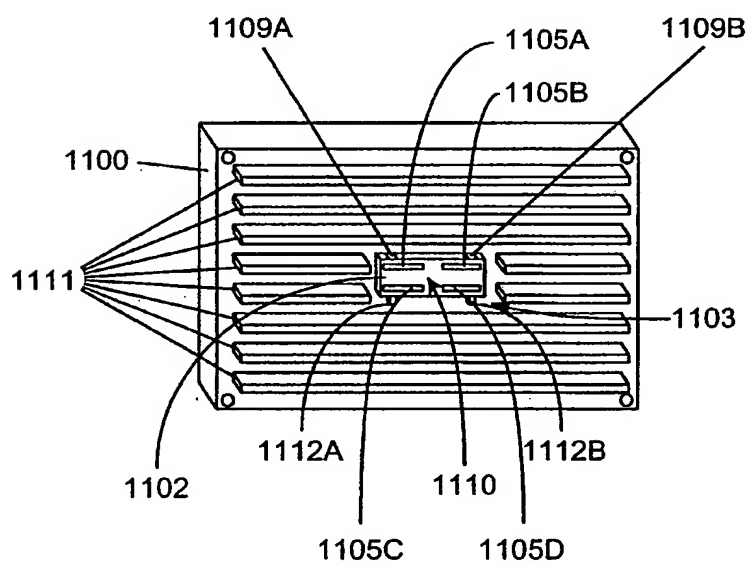


FIG. 3D5

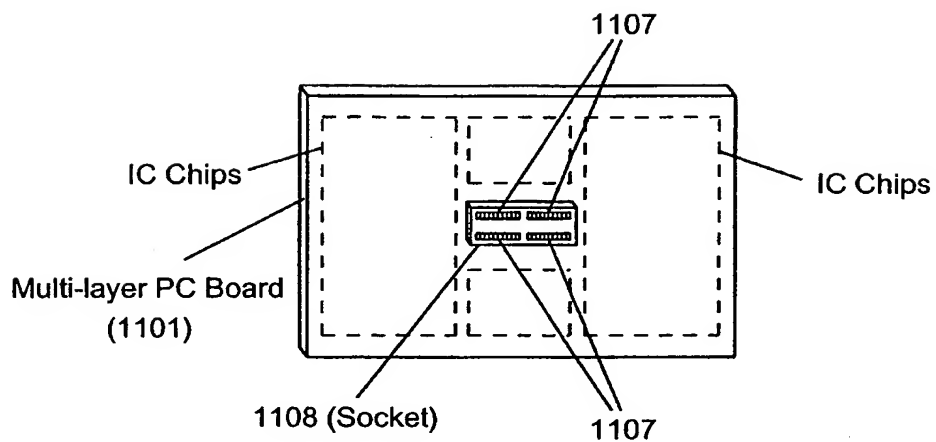


FIG. 3D6

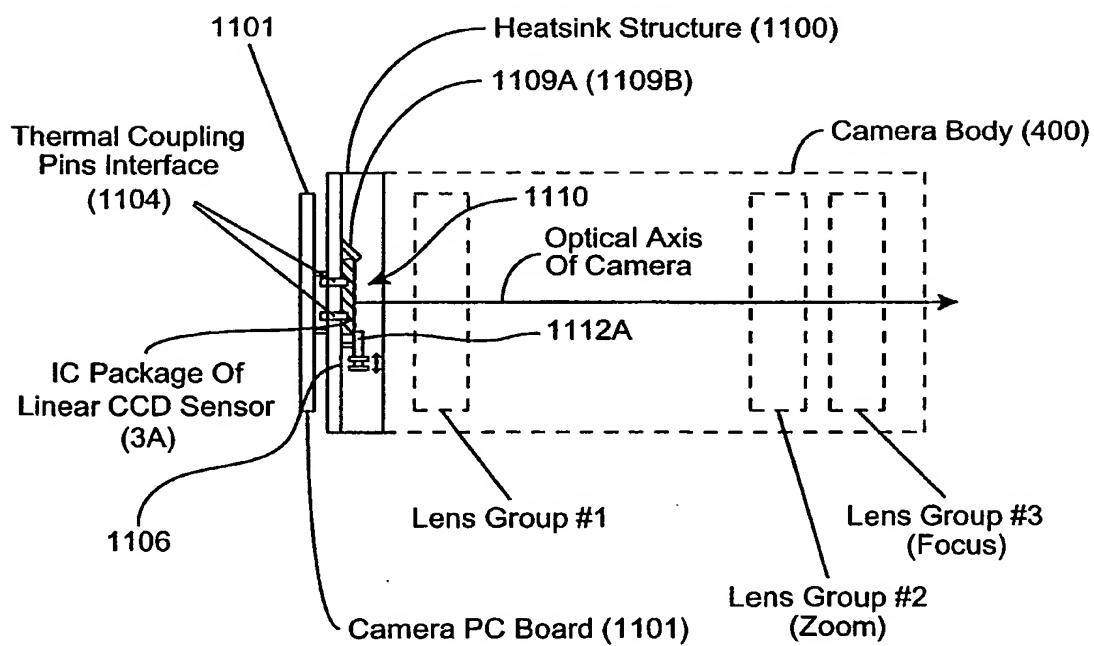


FIG. 3D7

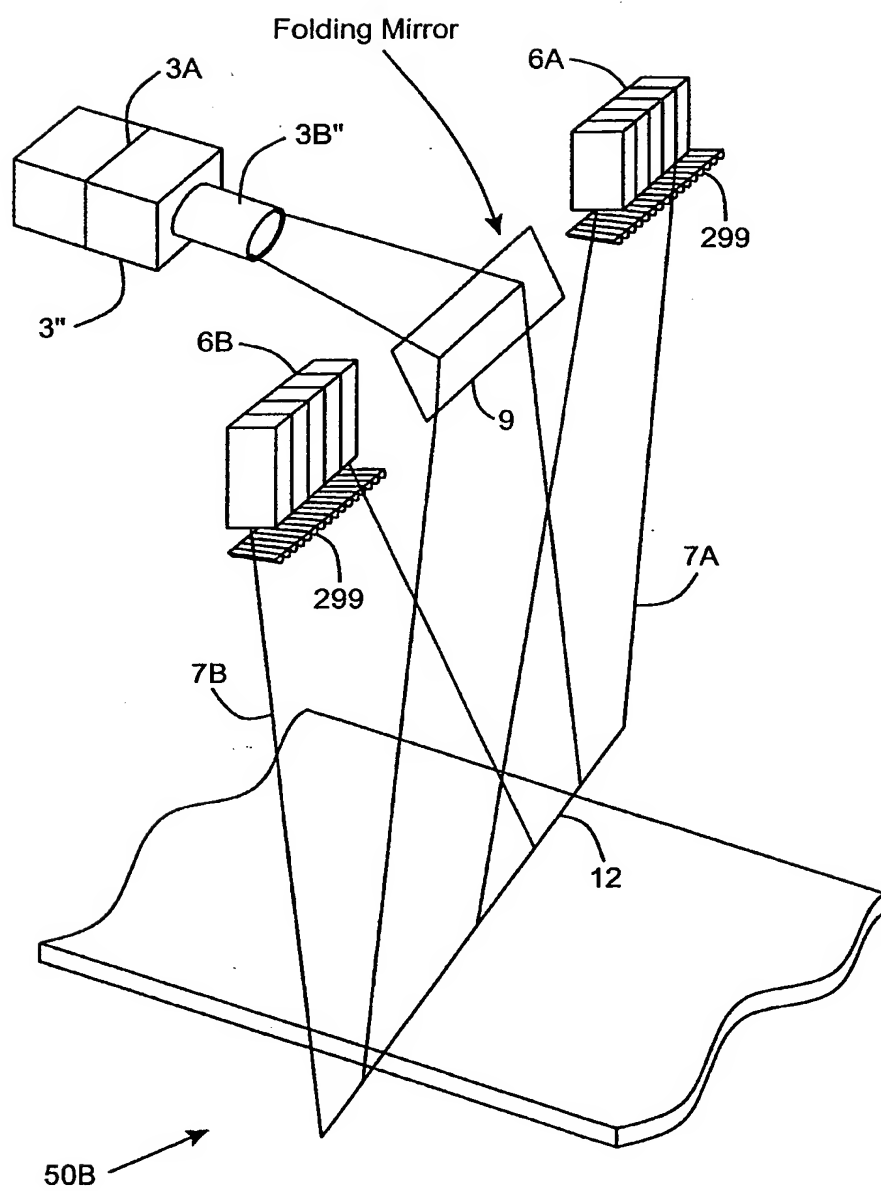


FIG. 3E1

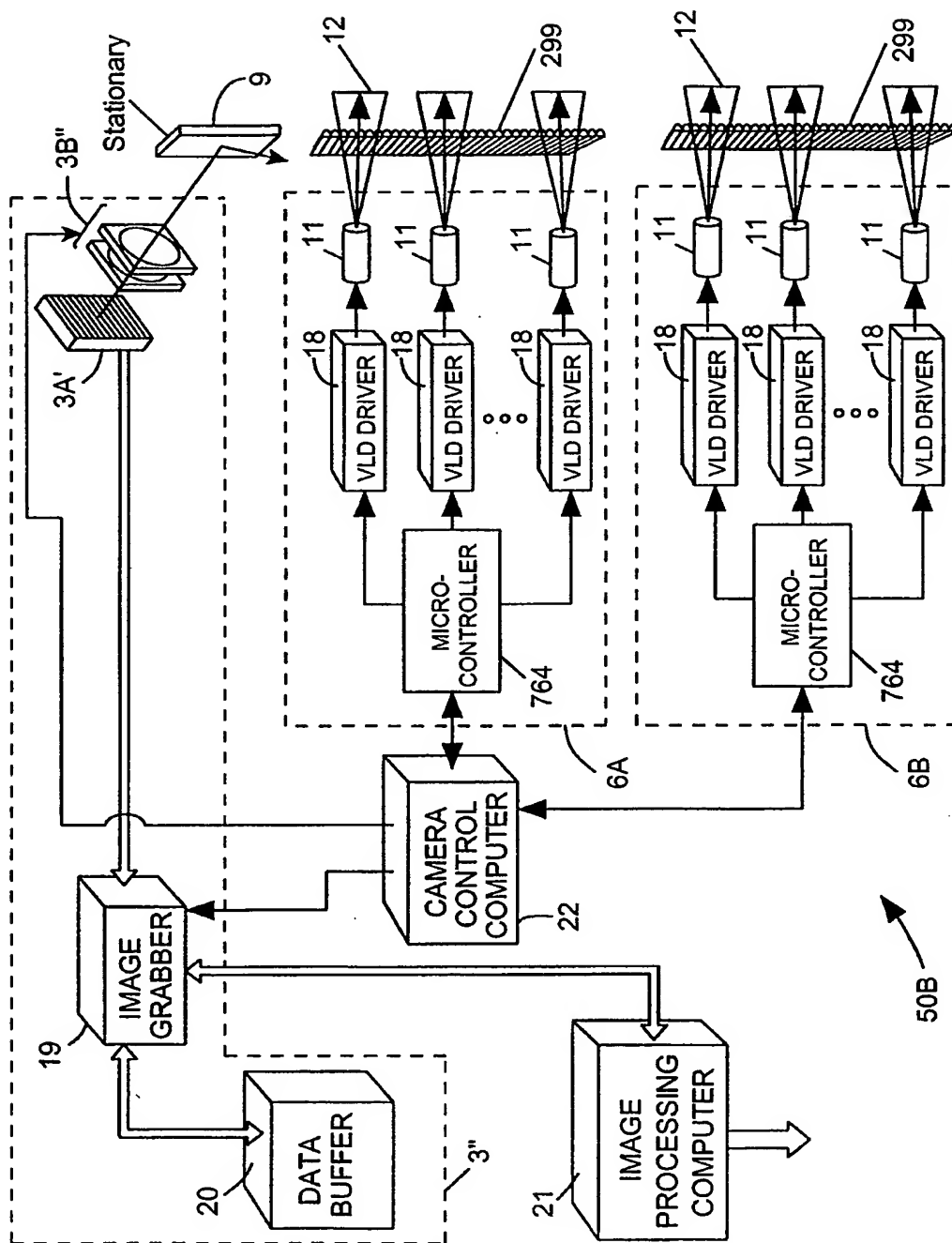


FIG. 3E2

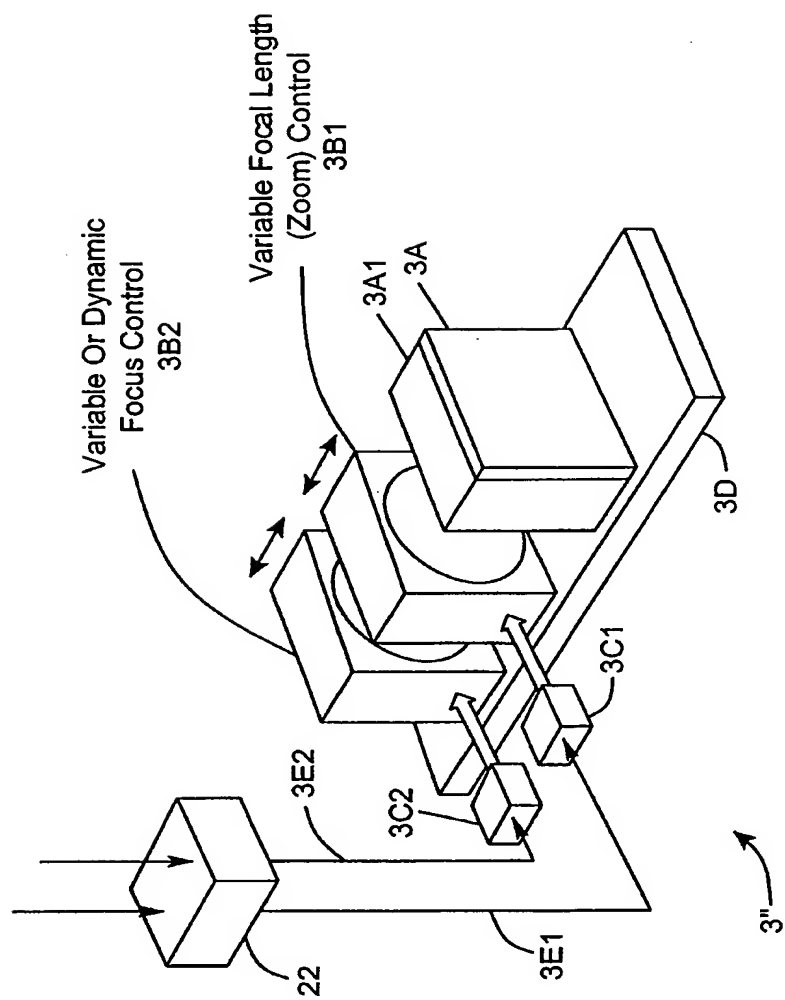


FIG. 3E3

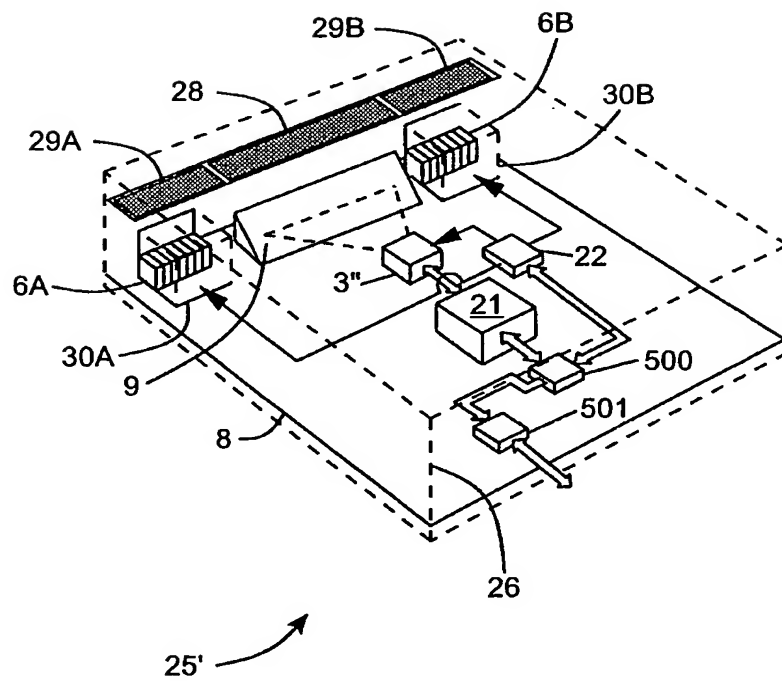


FIG. 3E4

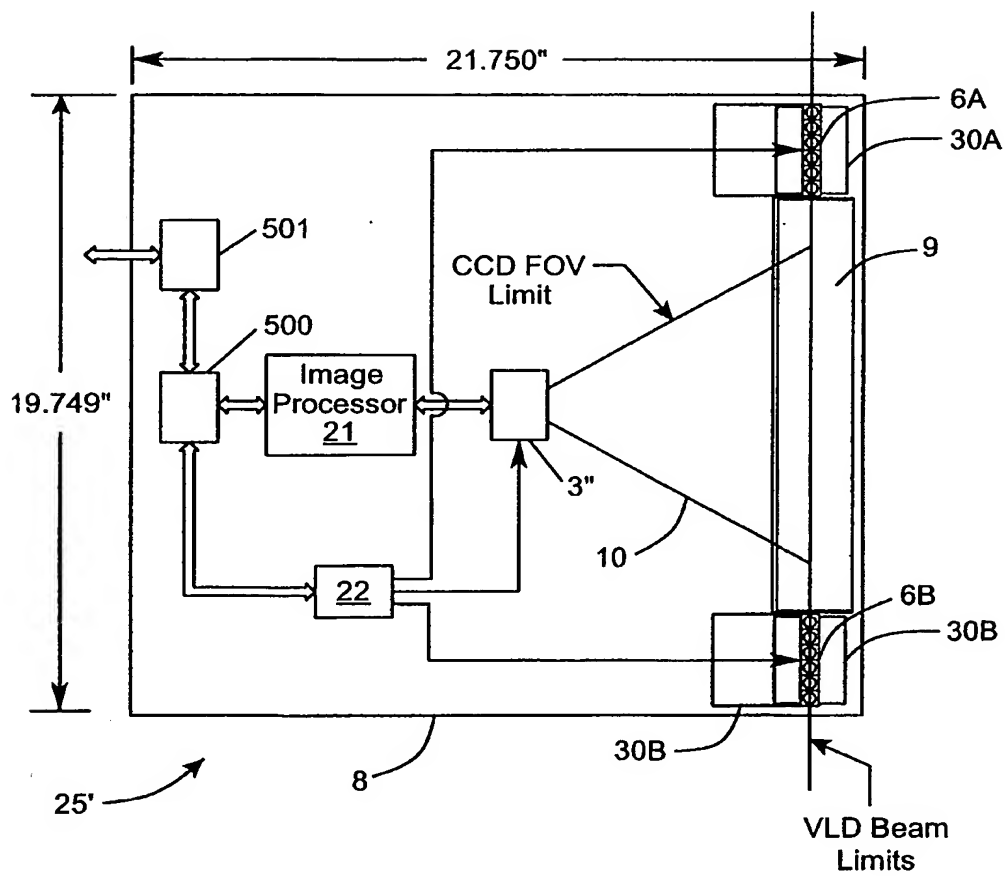


FIG. 3E5

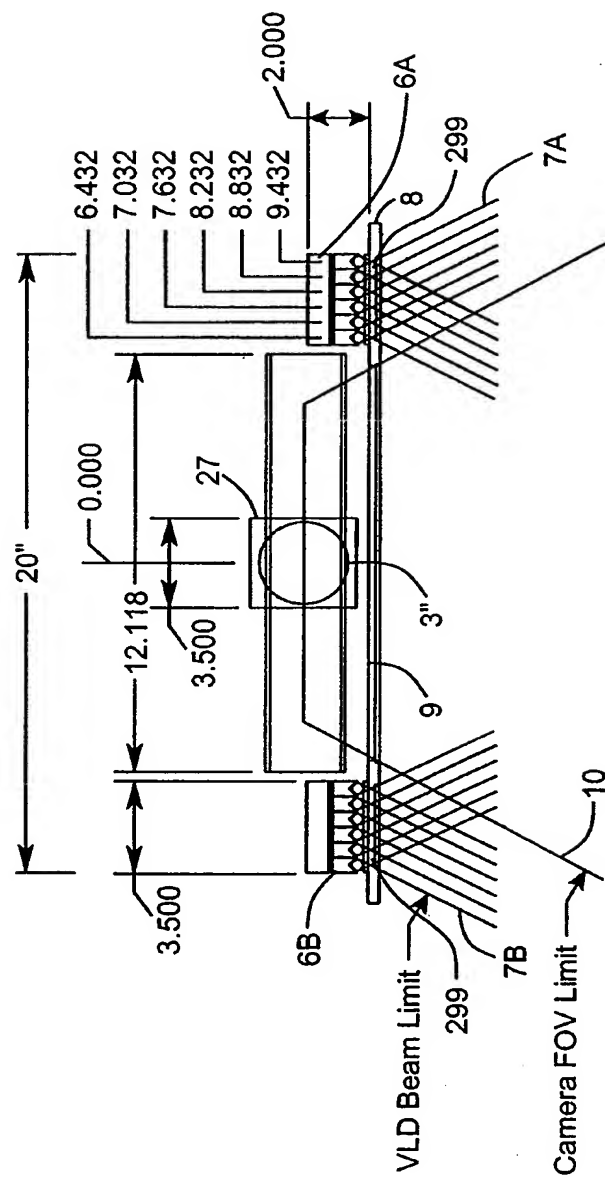


FIG. 3E6

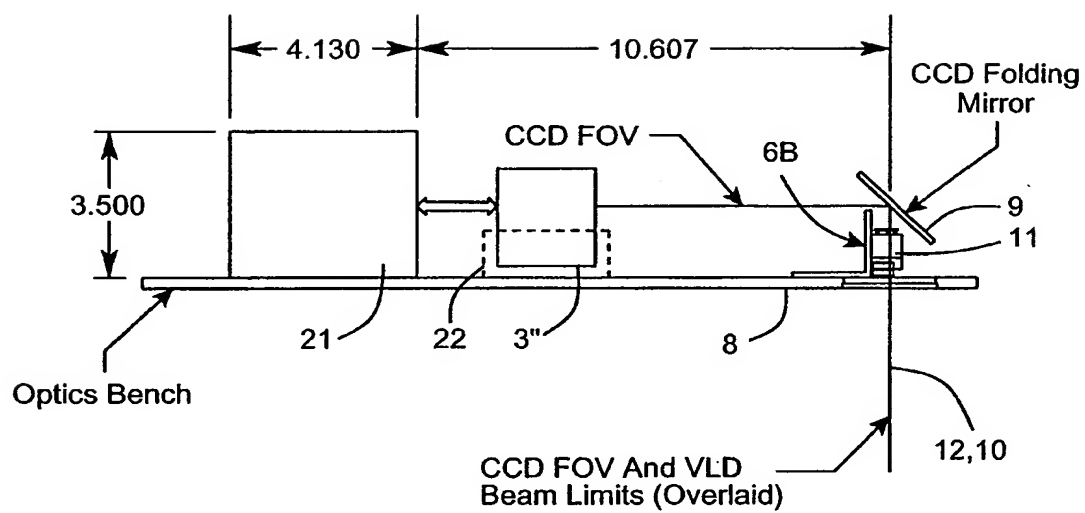


FIG. 3E7

* Variable FOV

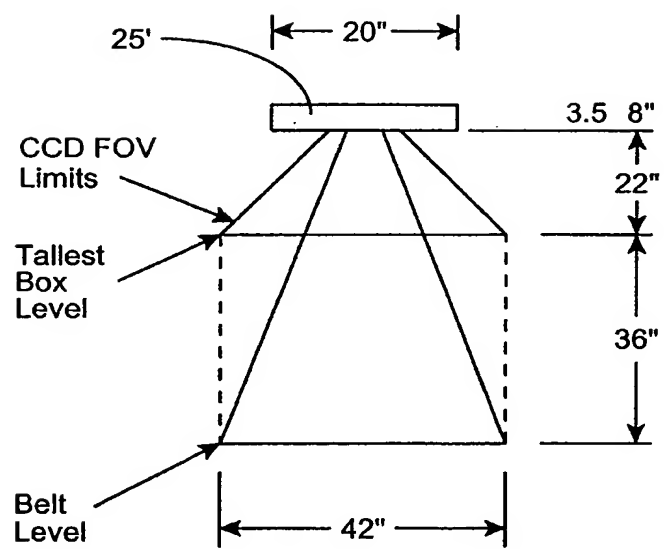


FIG. 3E8

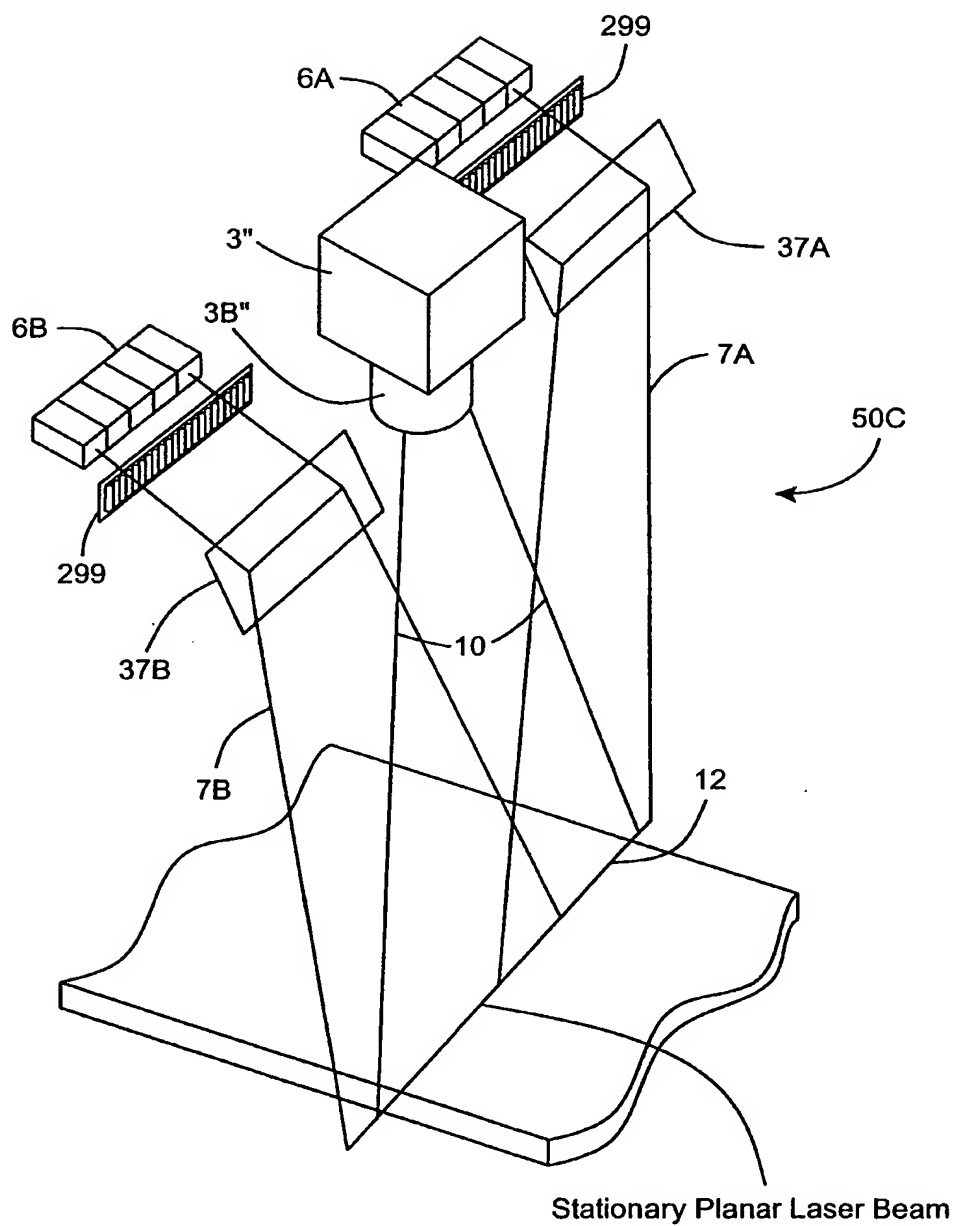


FIG. 3F1

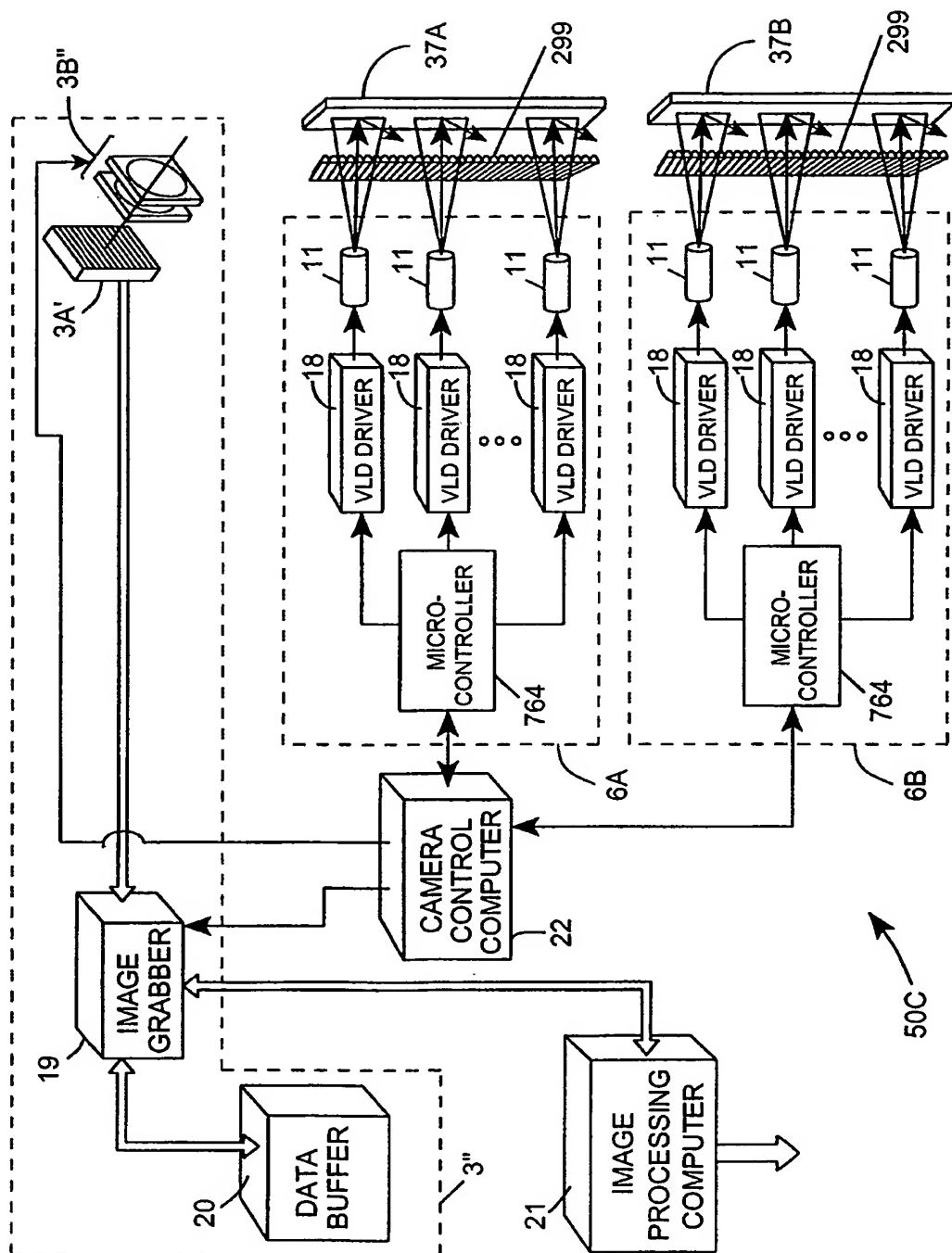


FIG. 3F2

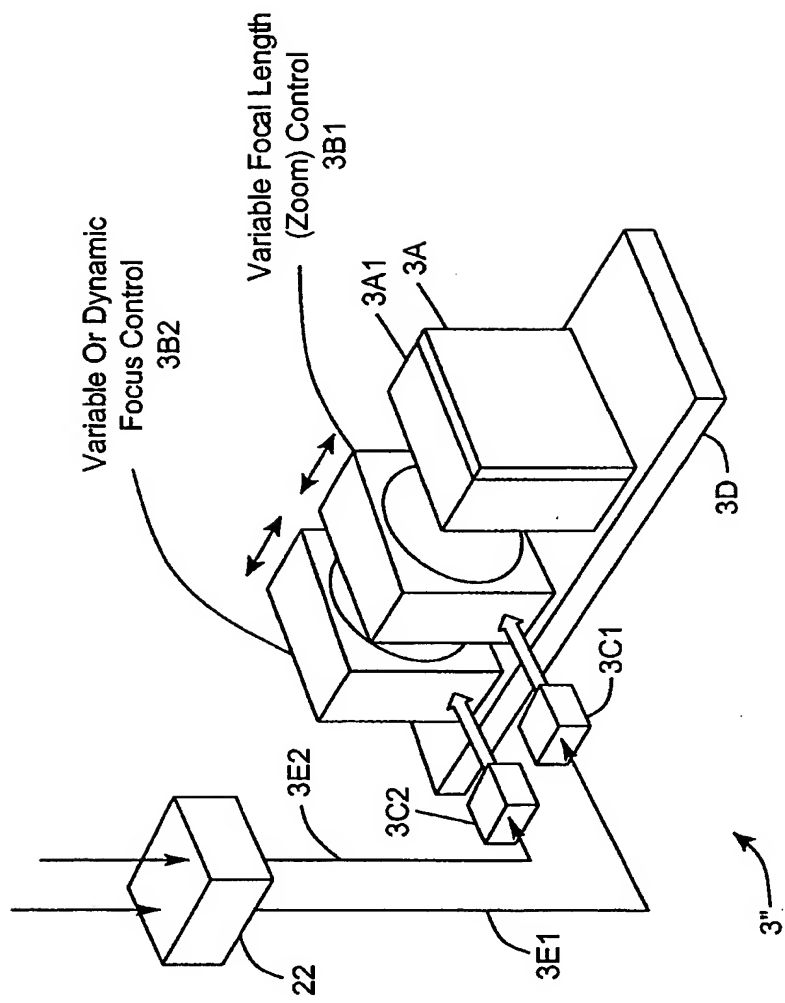


FIG. 3F3

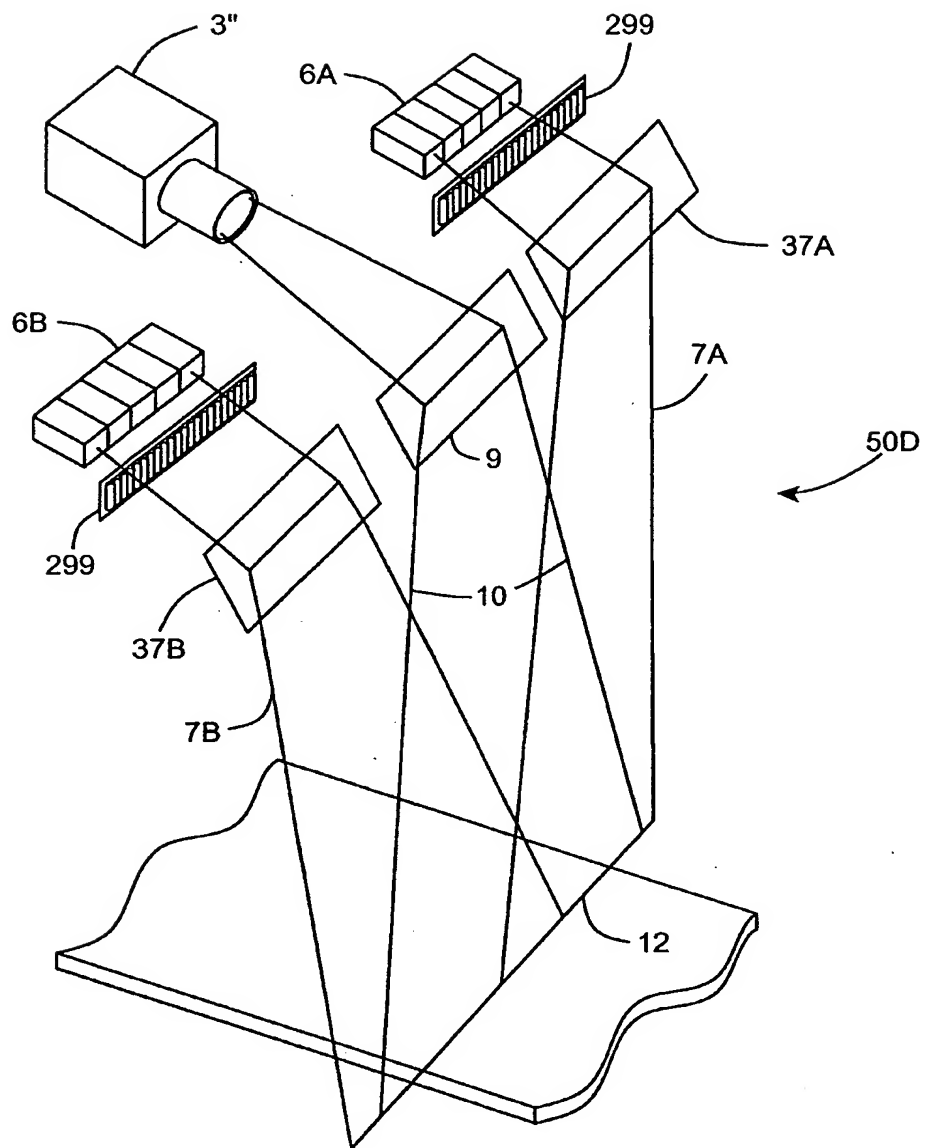


FIG. 3G1

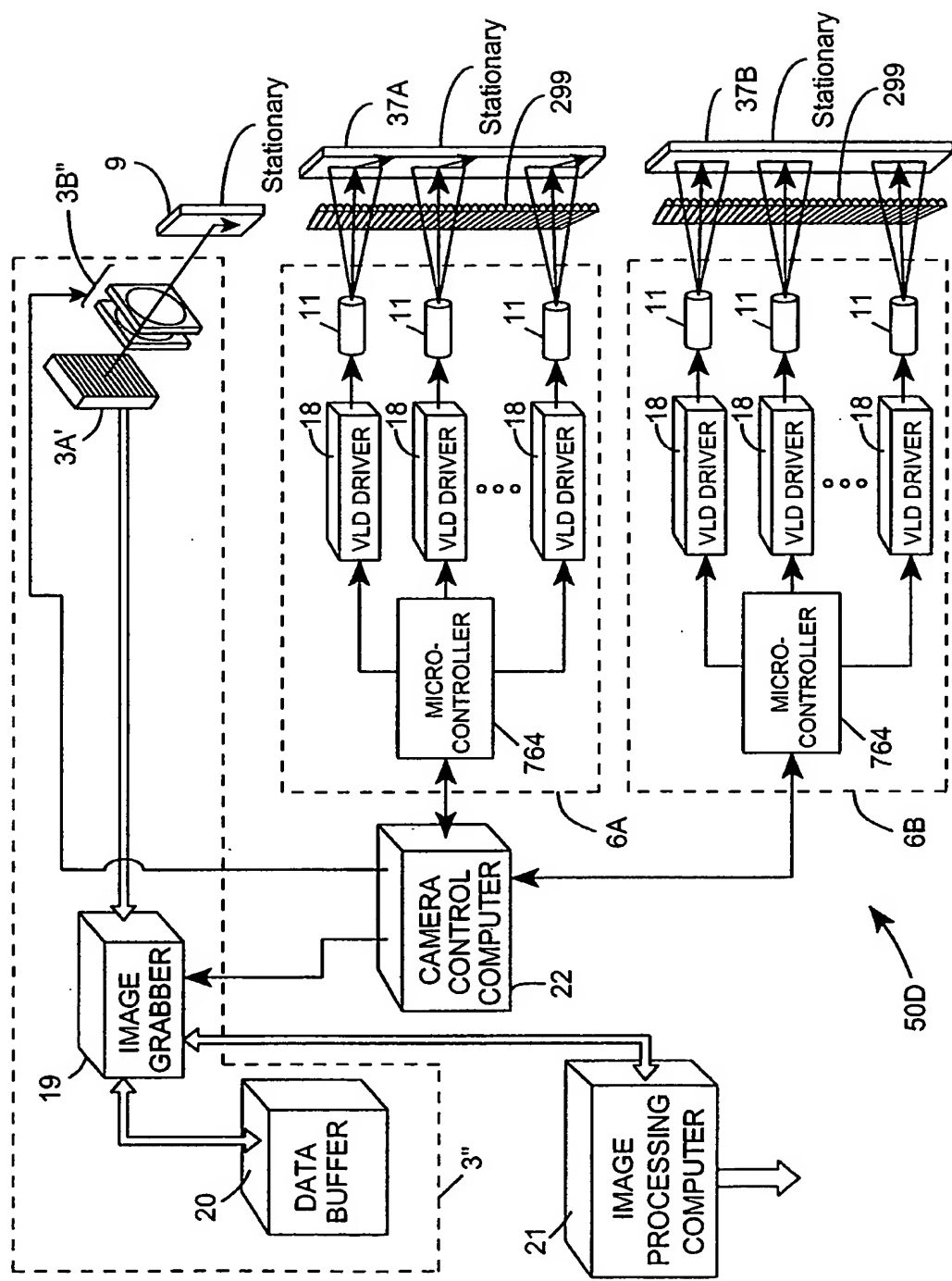


FIG. 3G2

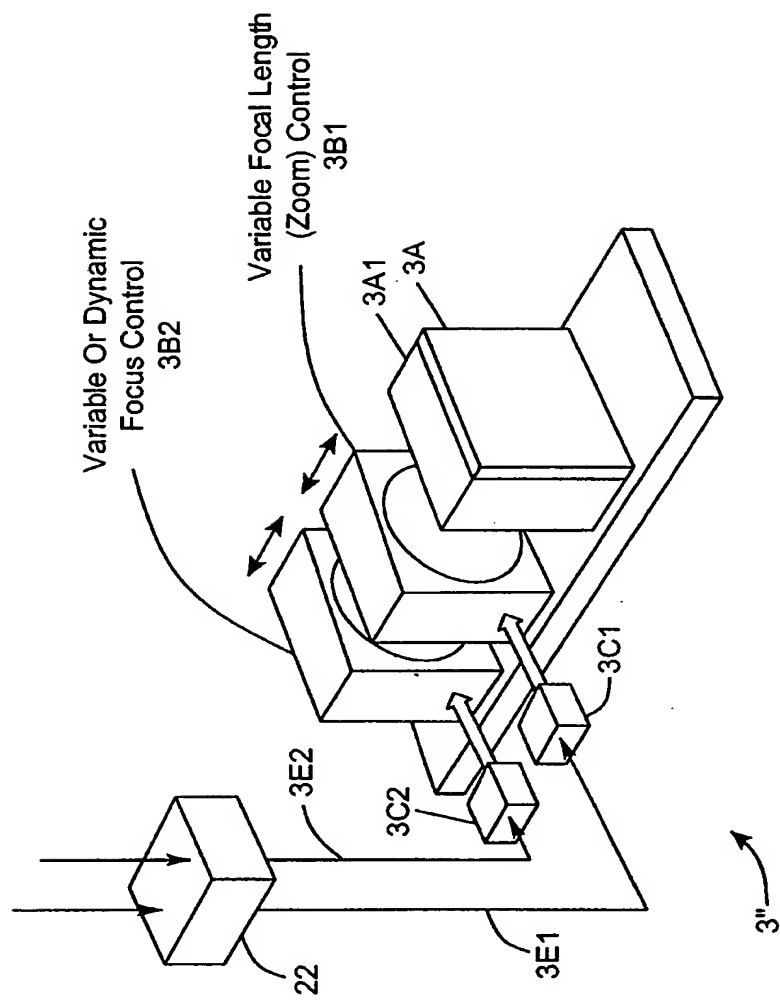


FIG. 3G3

- Variable Focal Length Imaging Lens
- Variable Focal Distance

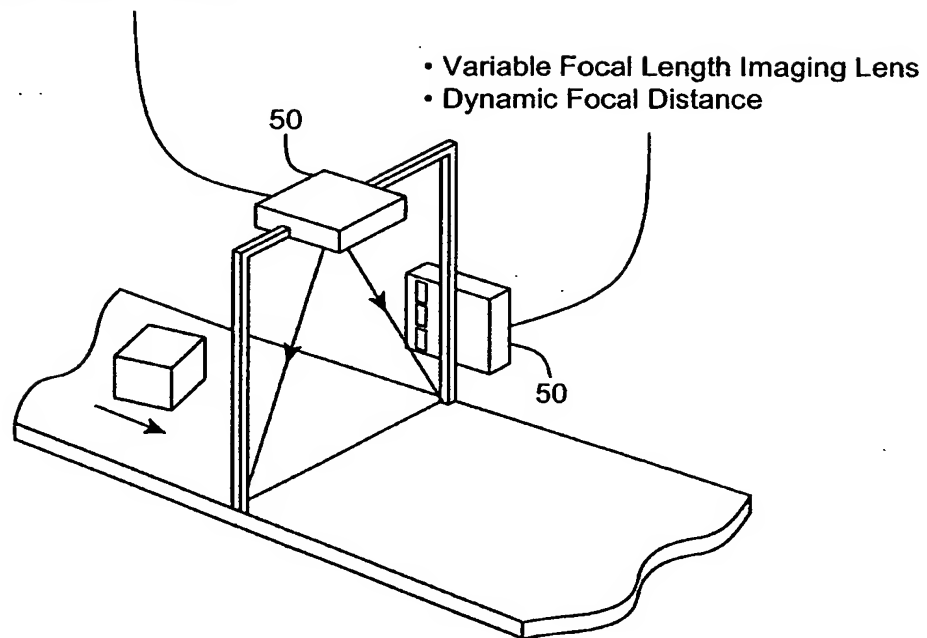


FIG. 3H

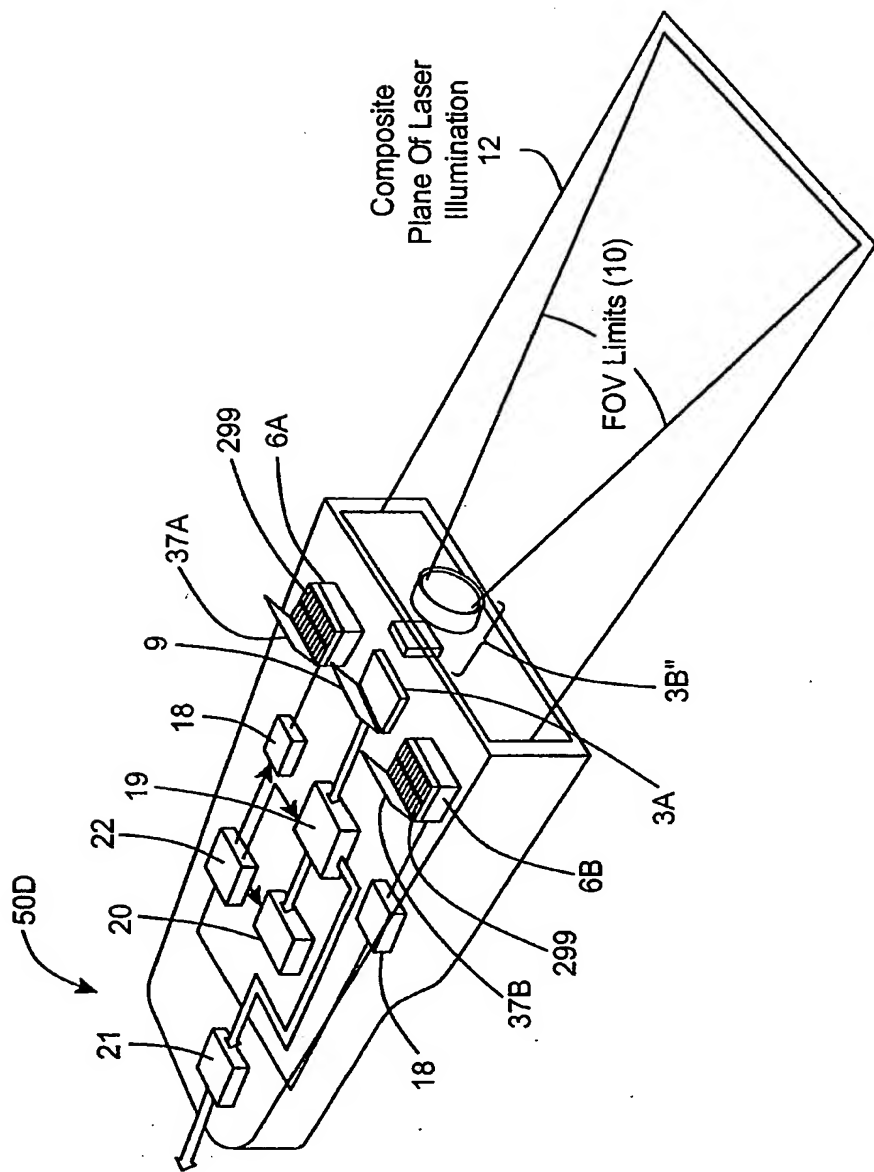


FIG. 3I

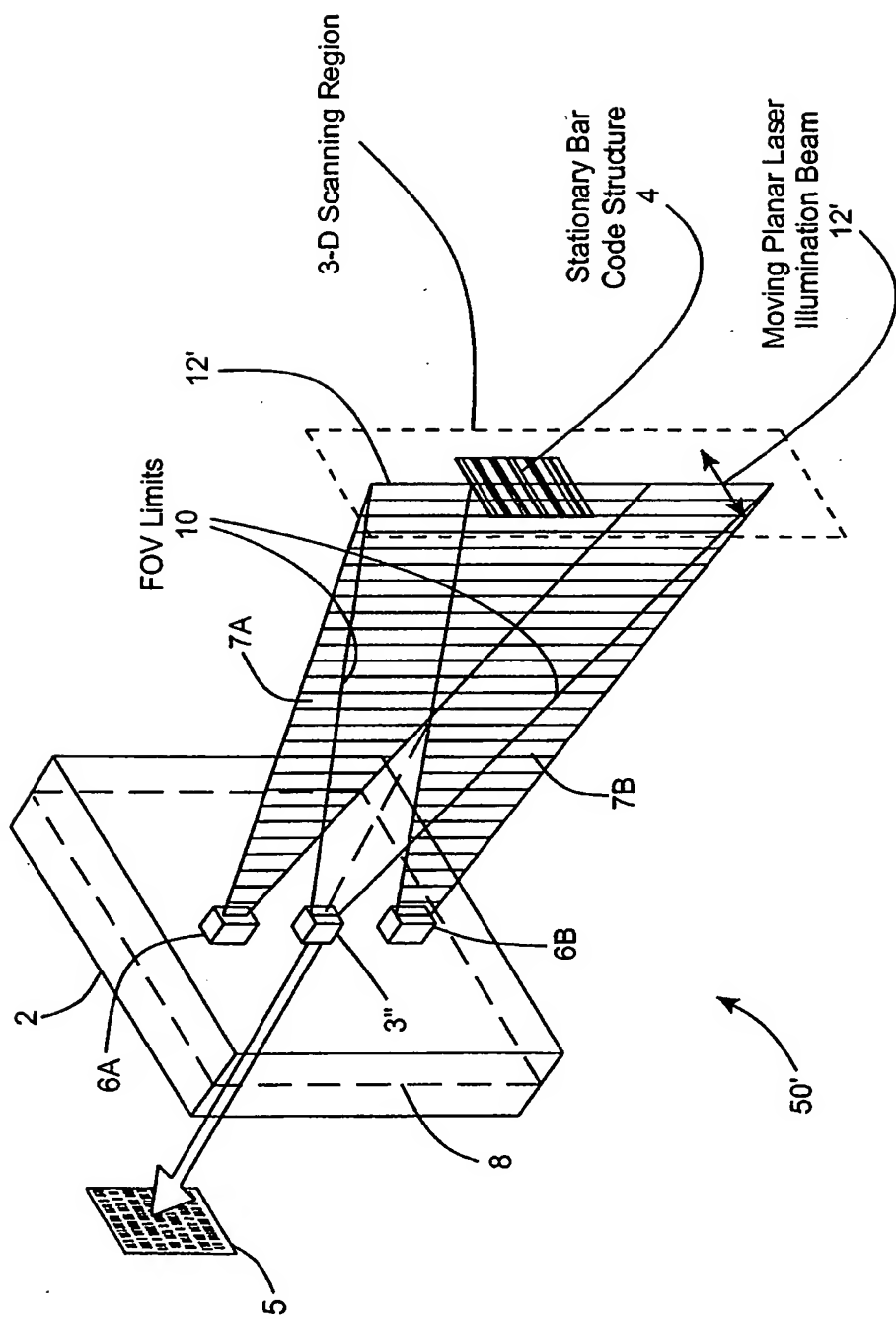


FIG. 3J1

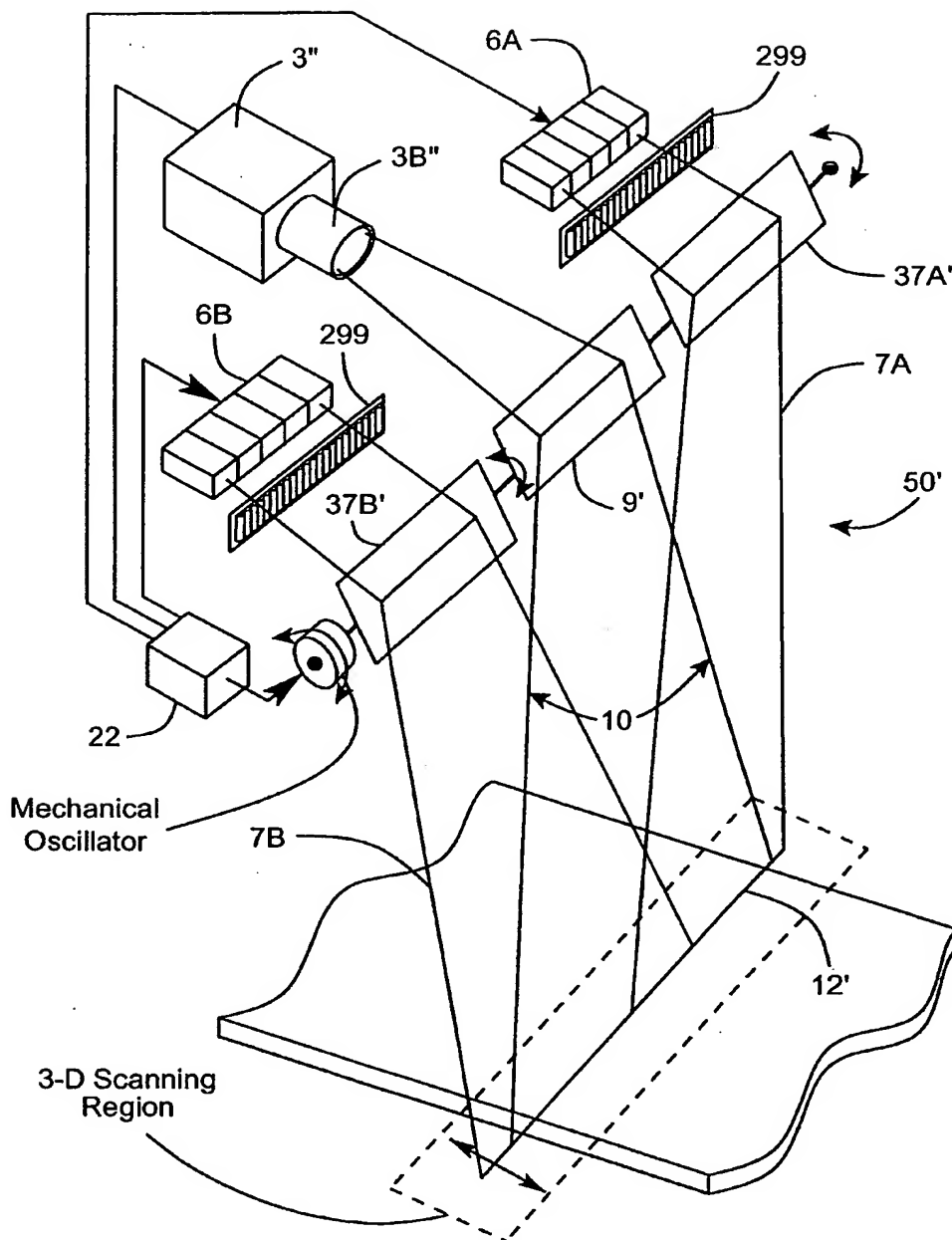


FIG. 3J2

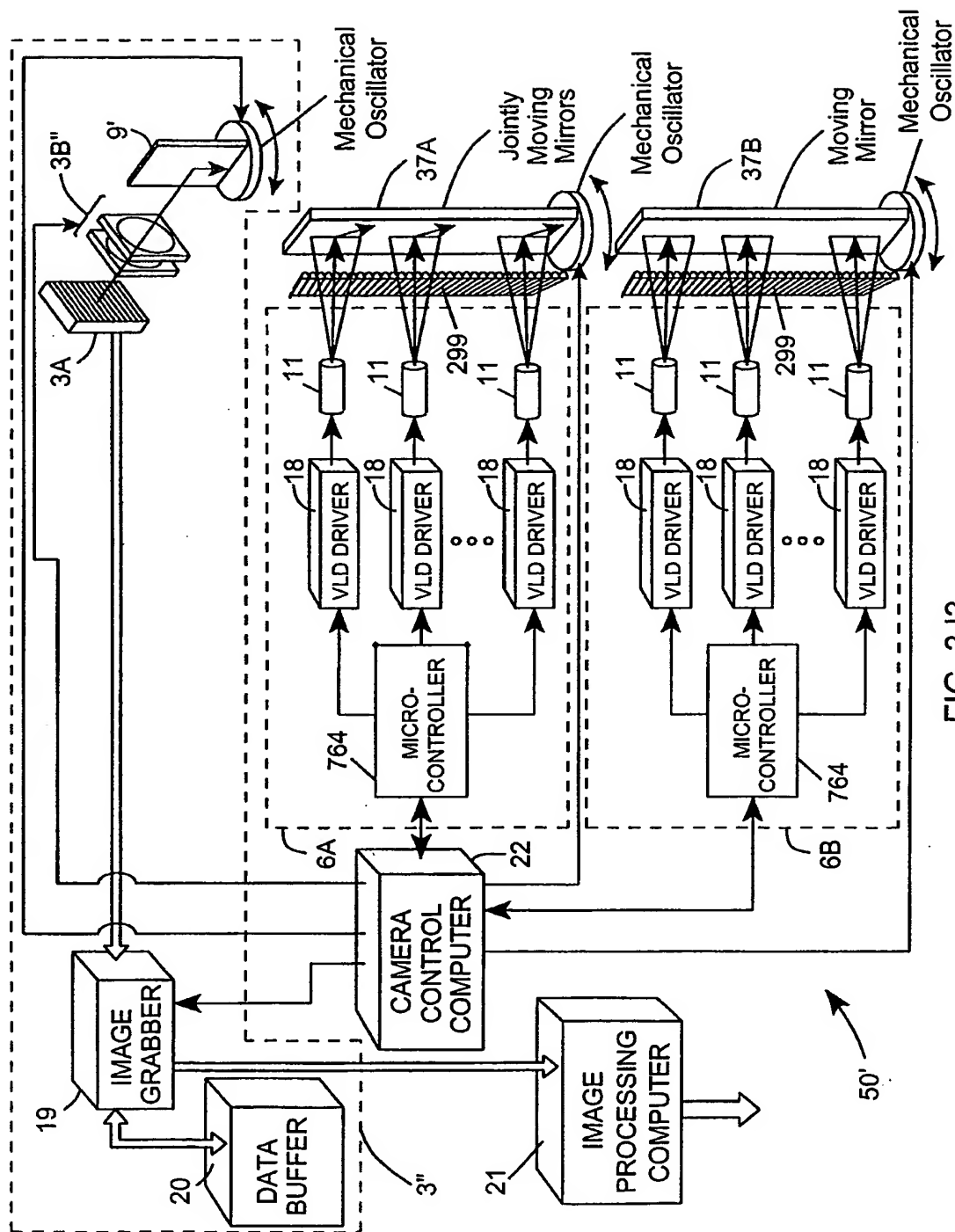


FIG. 3J3

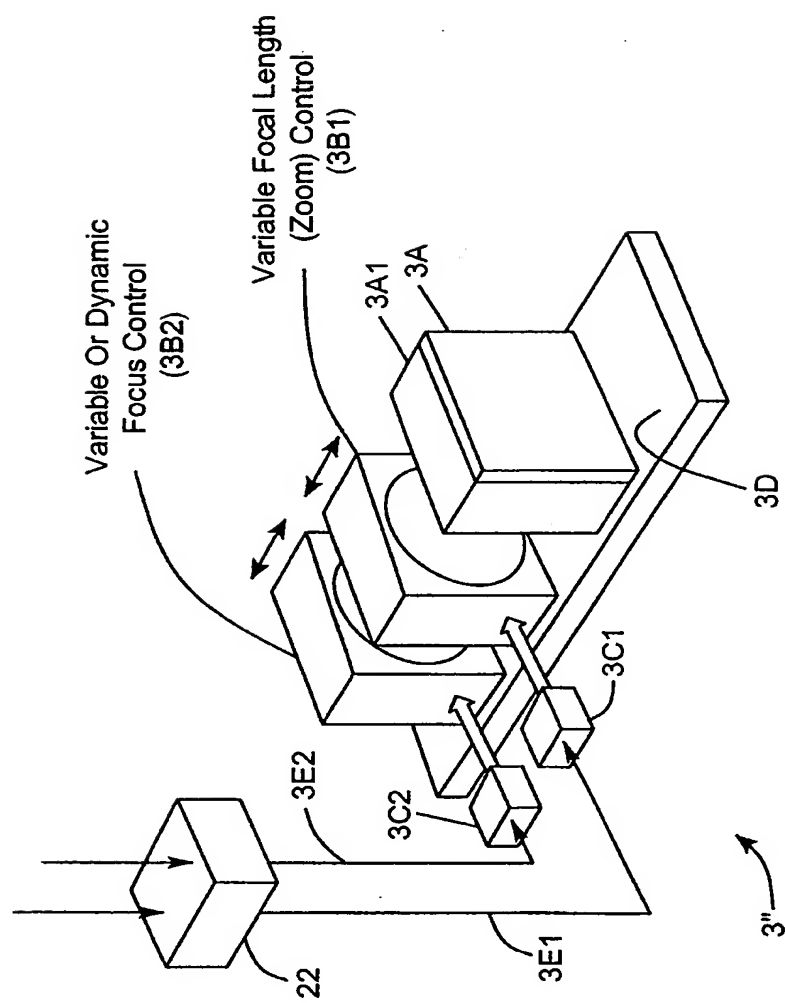
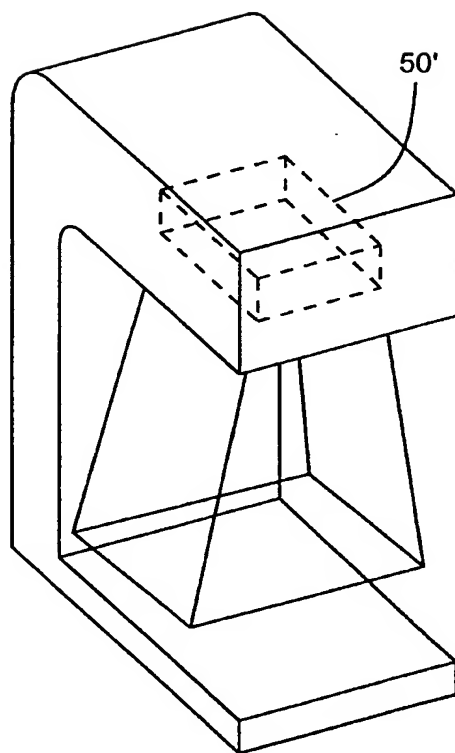


FIG. 3J4



2-D Hold-under Scanner

FIG. 3J6

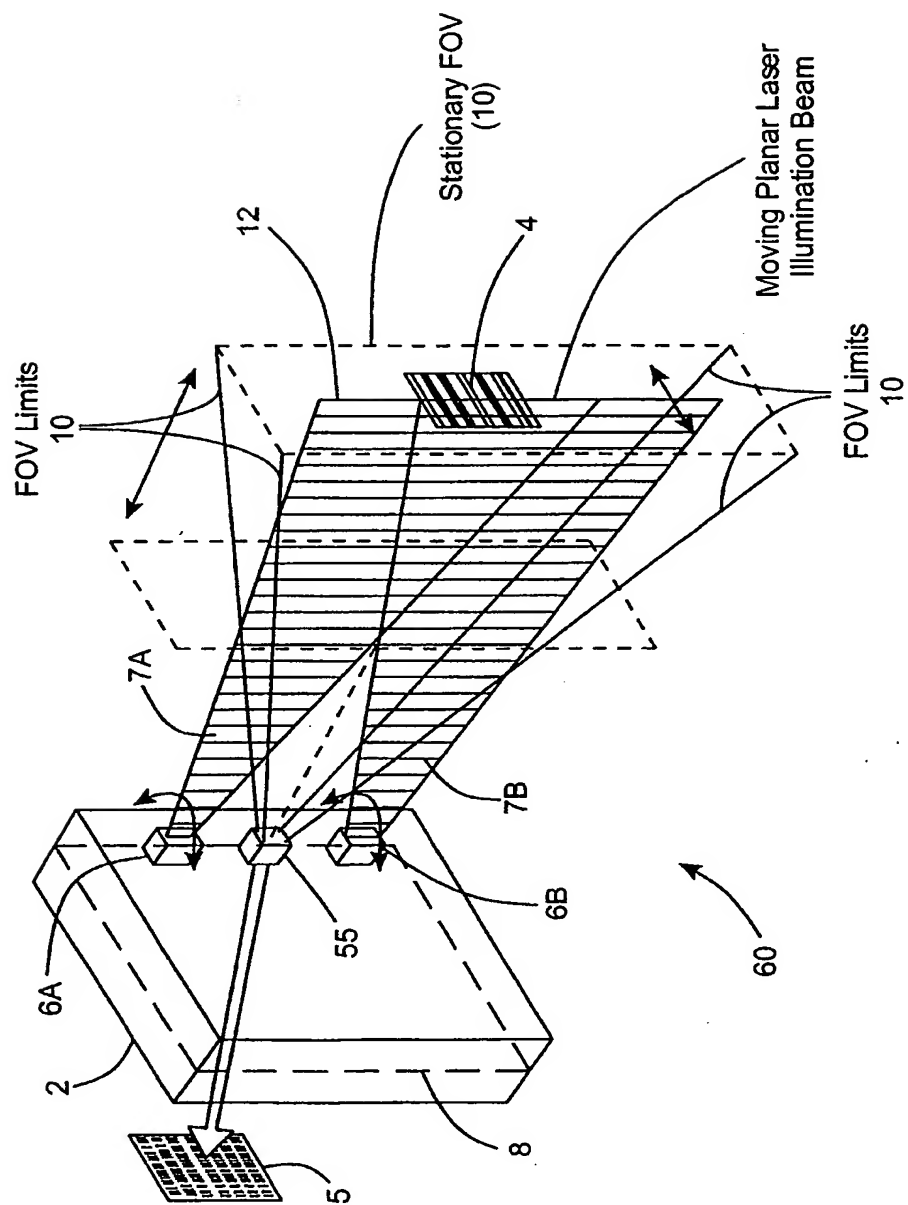


FIG. 4A

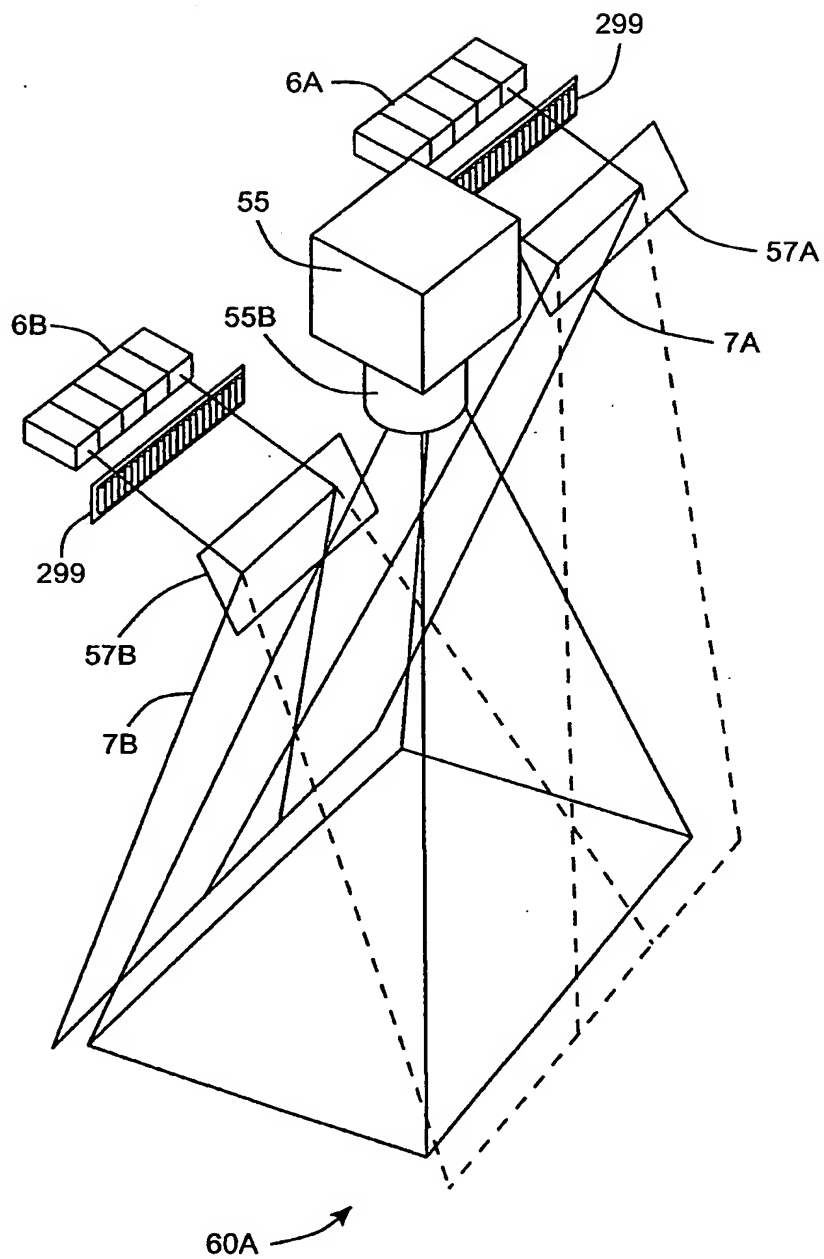


FIG. 4B1

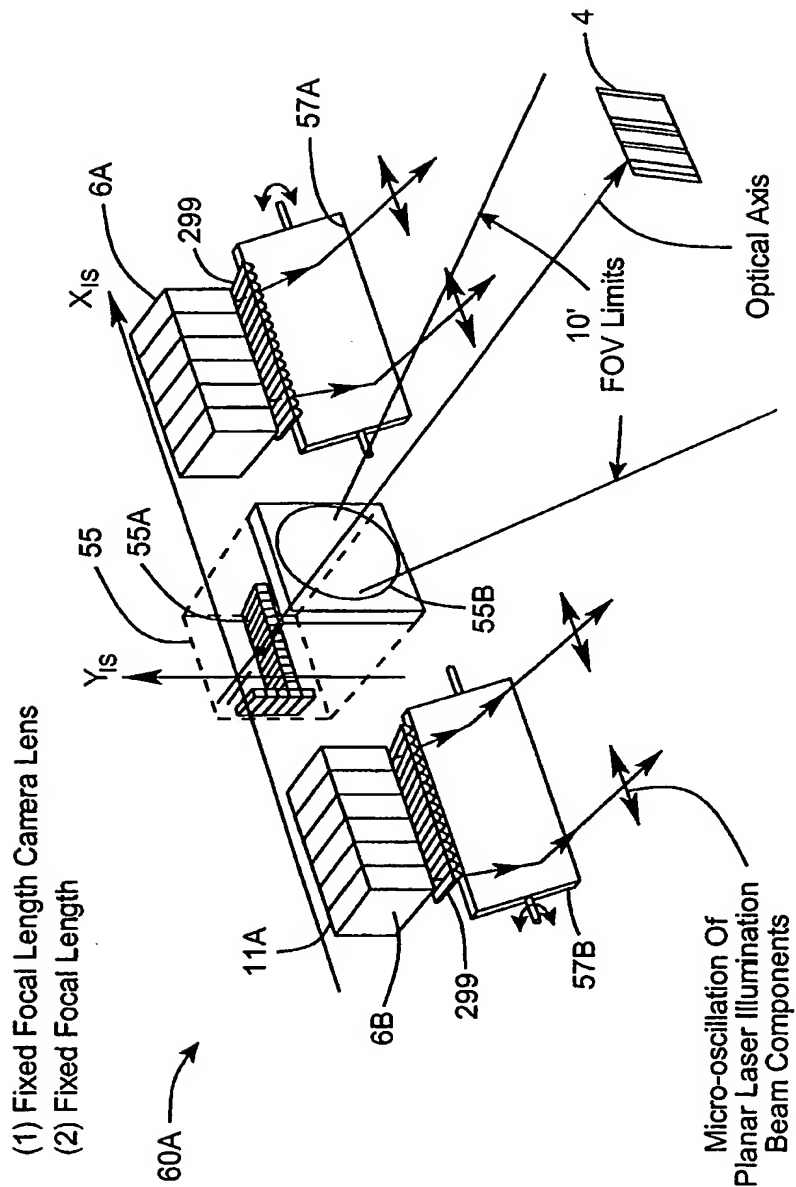


FIG. 4B2

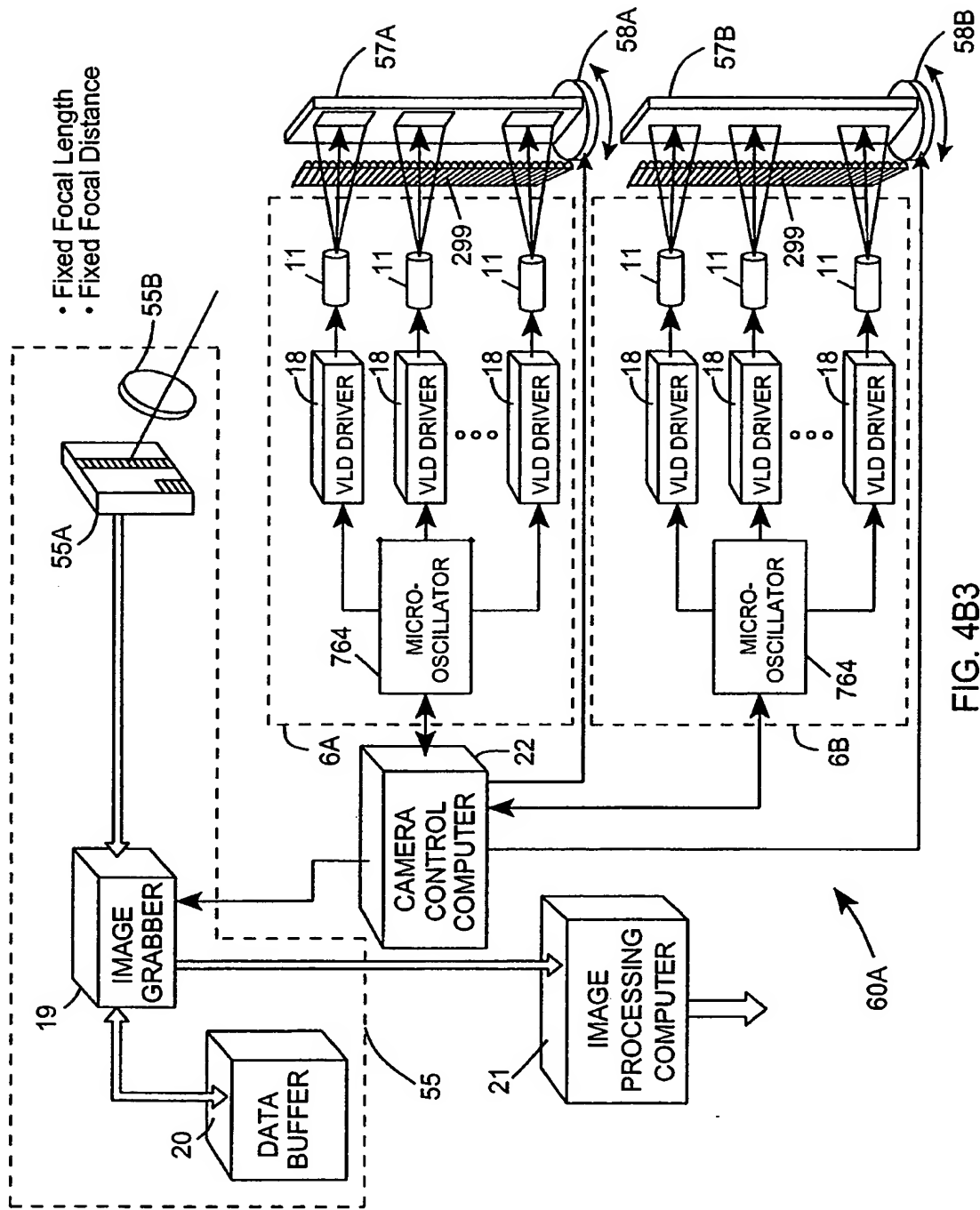


FIG. 4B3

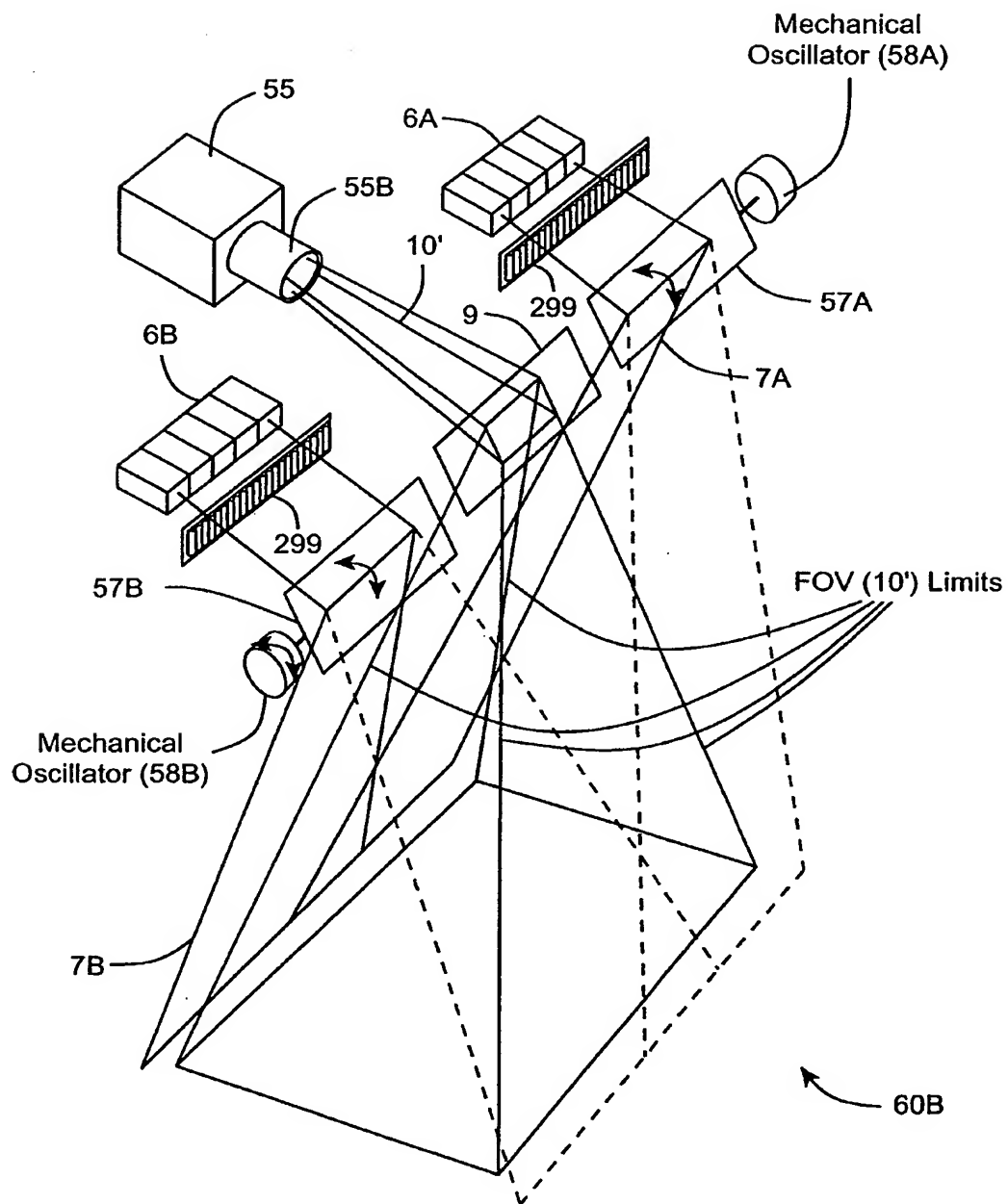
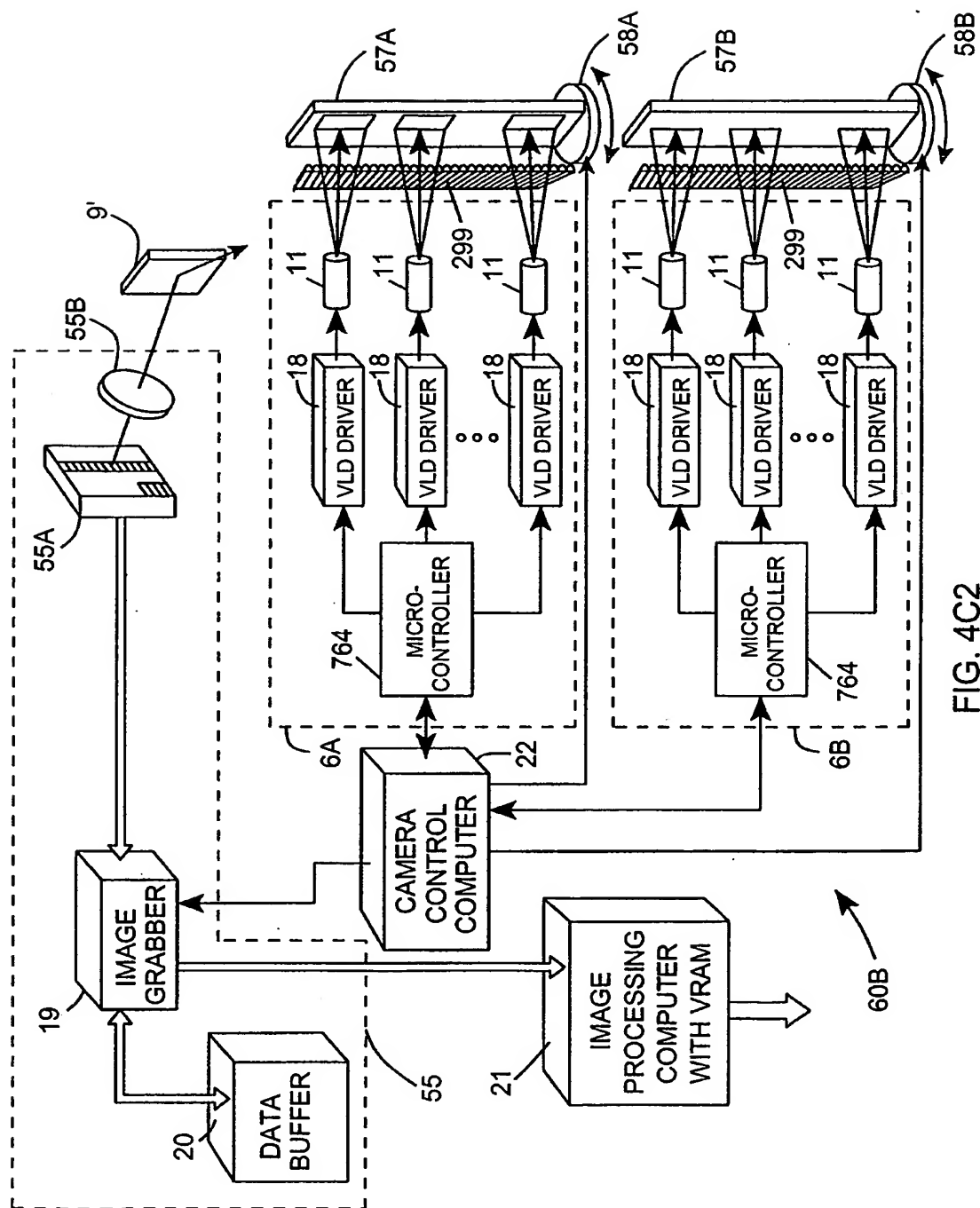
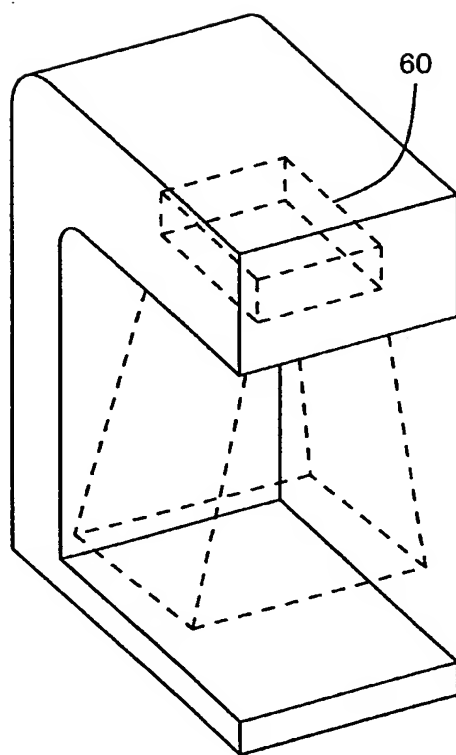


FIG. 4C1





2-D Hold-under Scanner

FIG. 4D

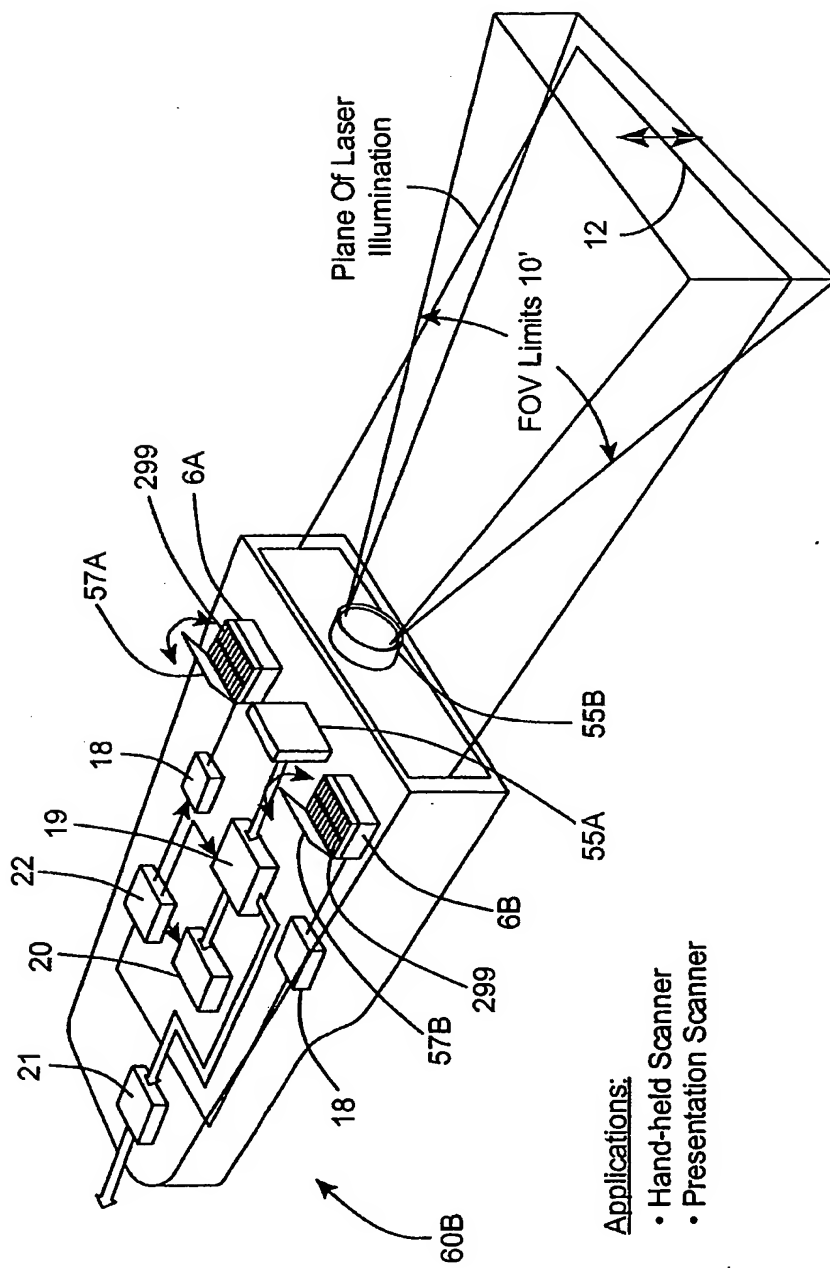


FIG. 4E

- Applications:
- Hand-held Scanner
 - Presentation Scanner

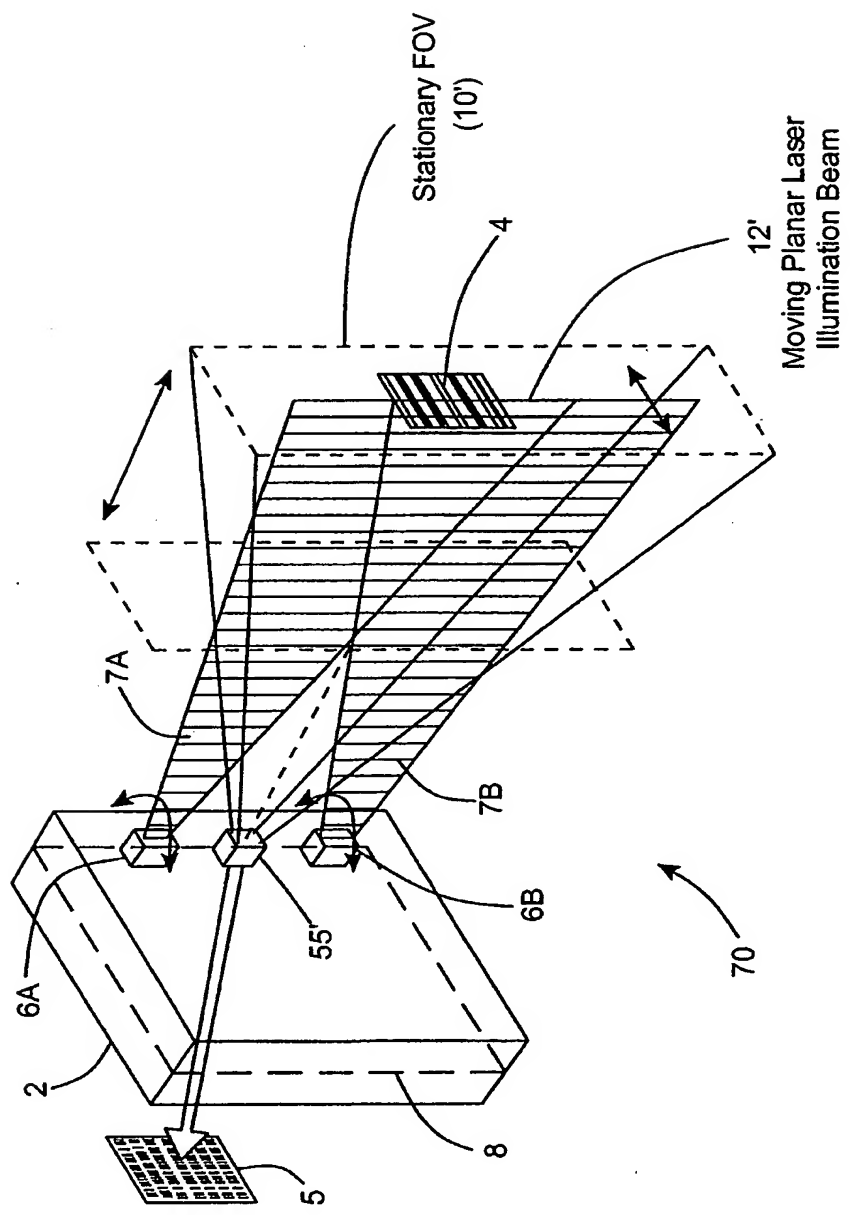


FIG. 5A

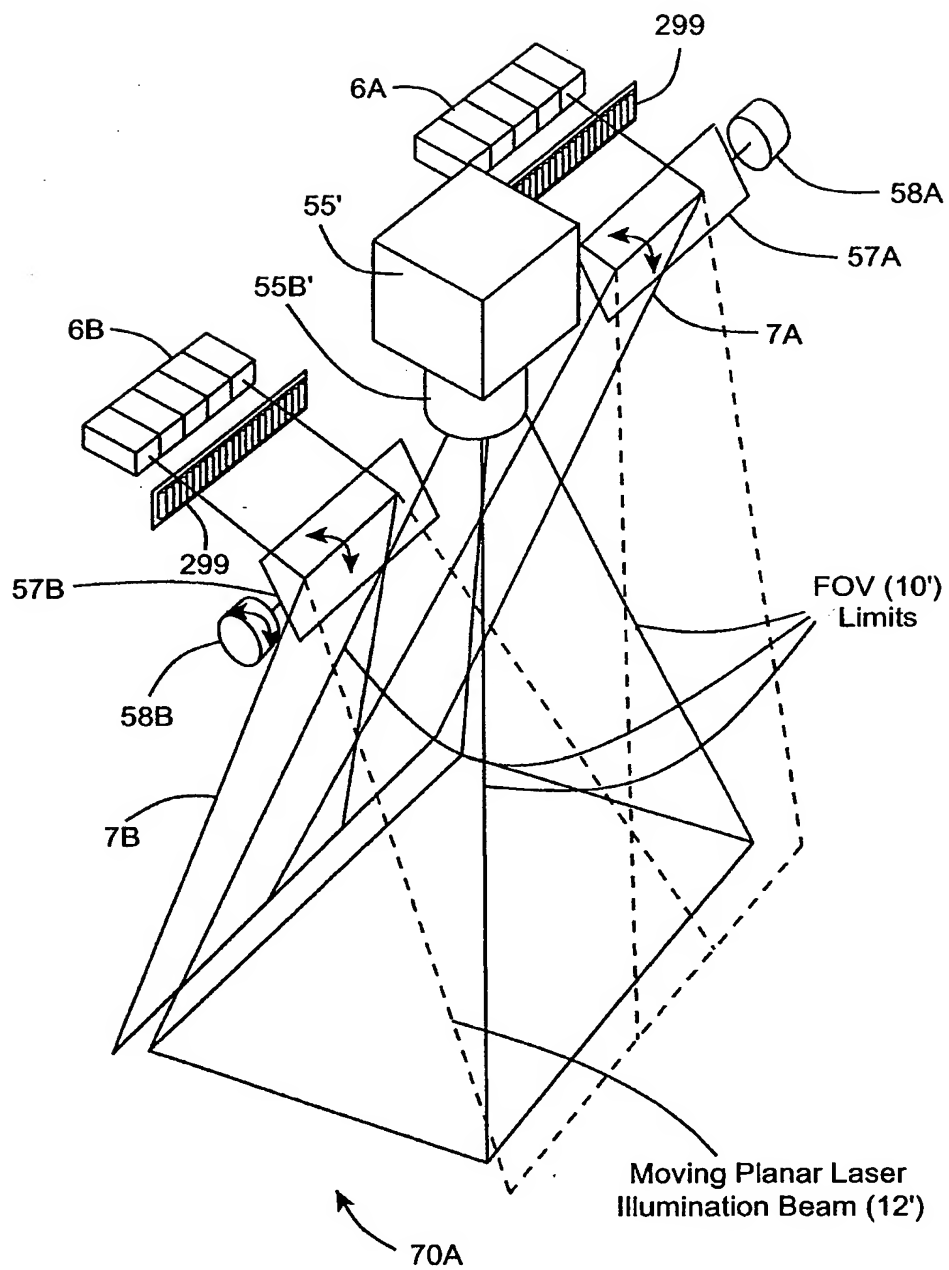


FIG. 5B1

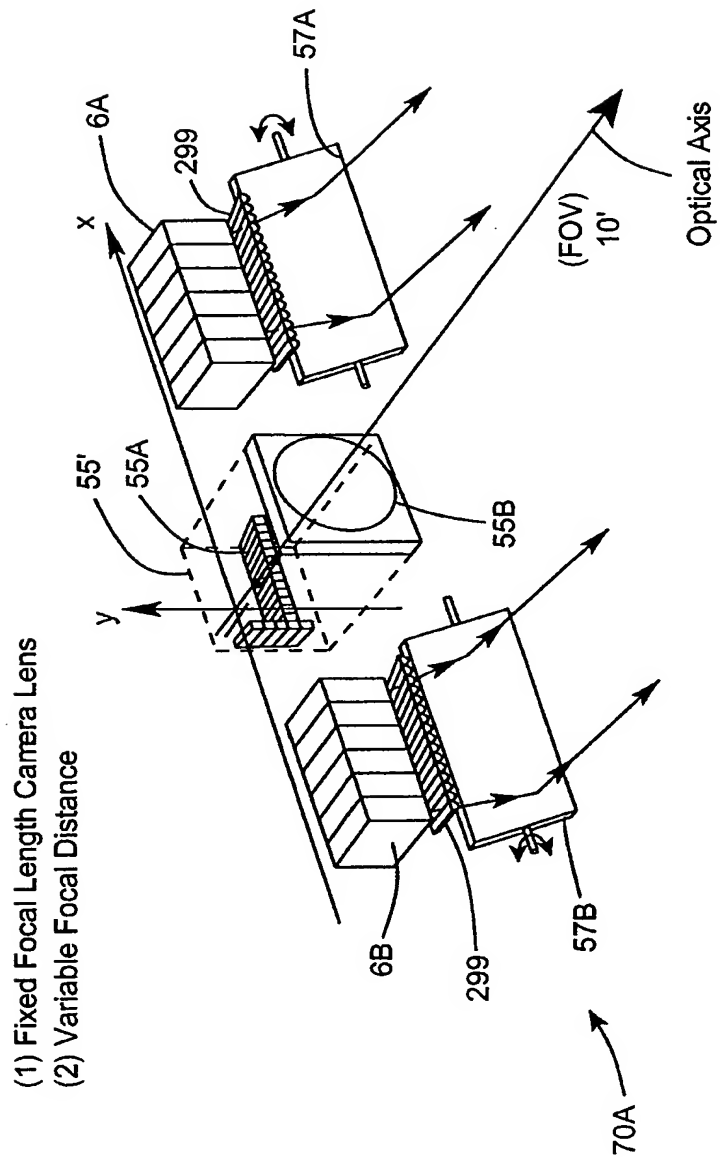


FIG. 5B2

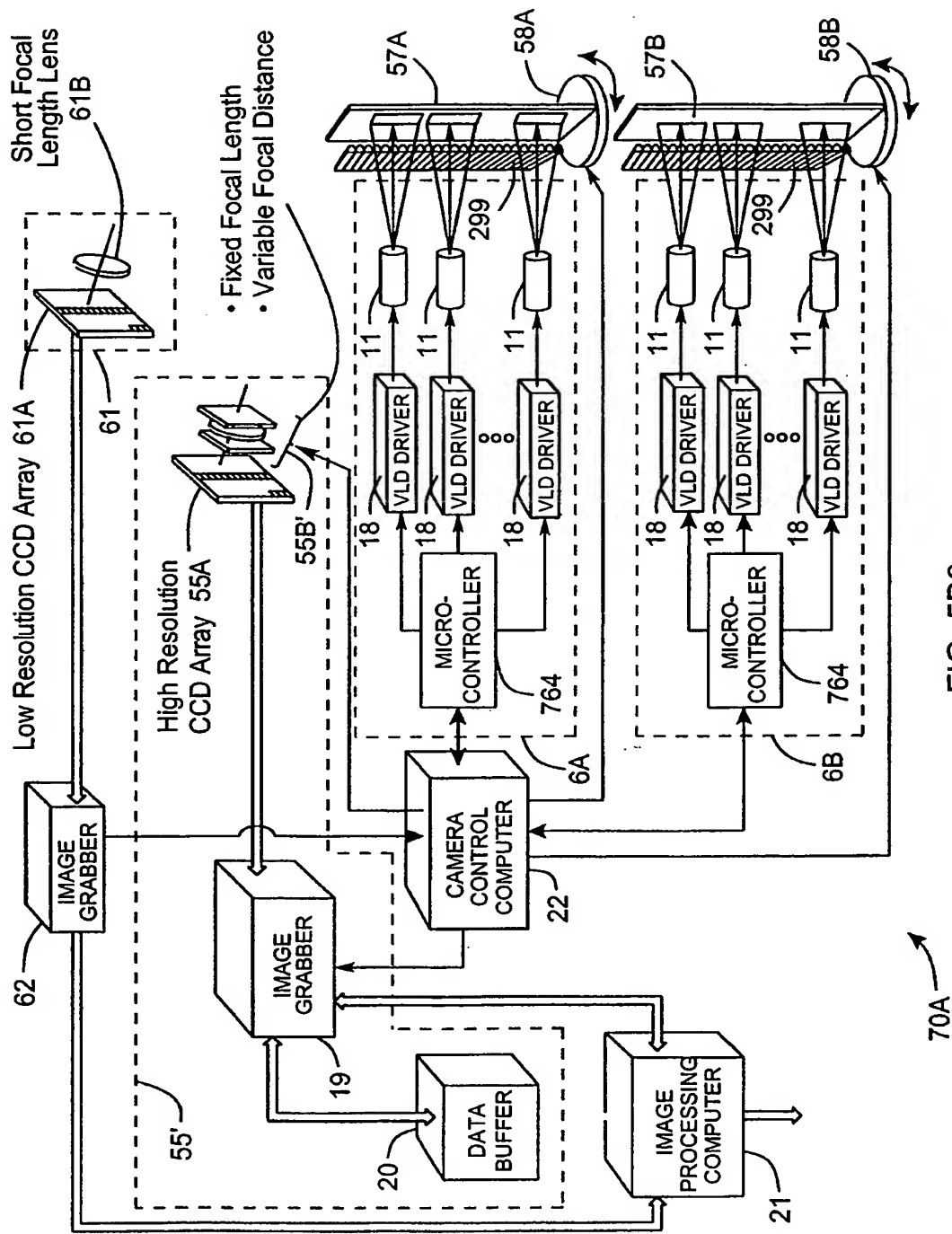


FIG. 5B3

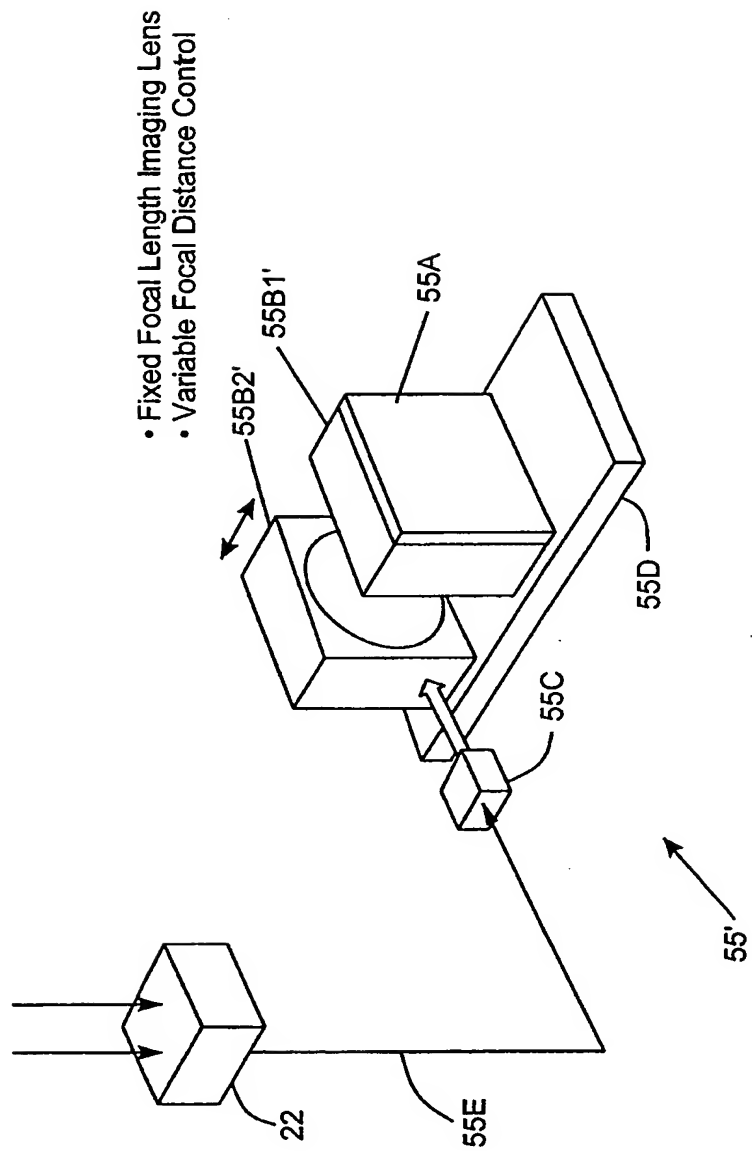


FIG. 5B4

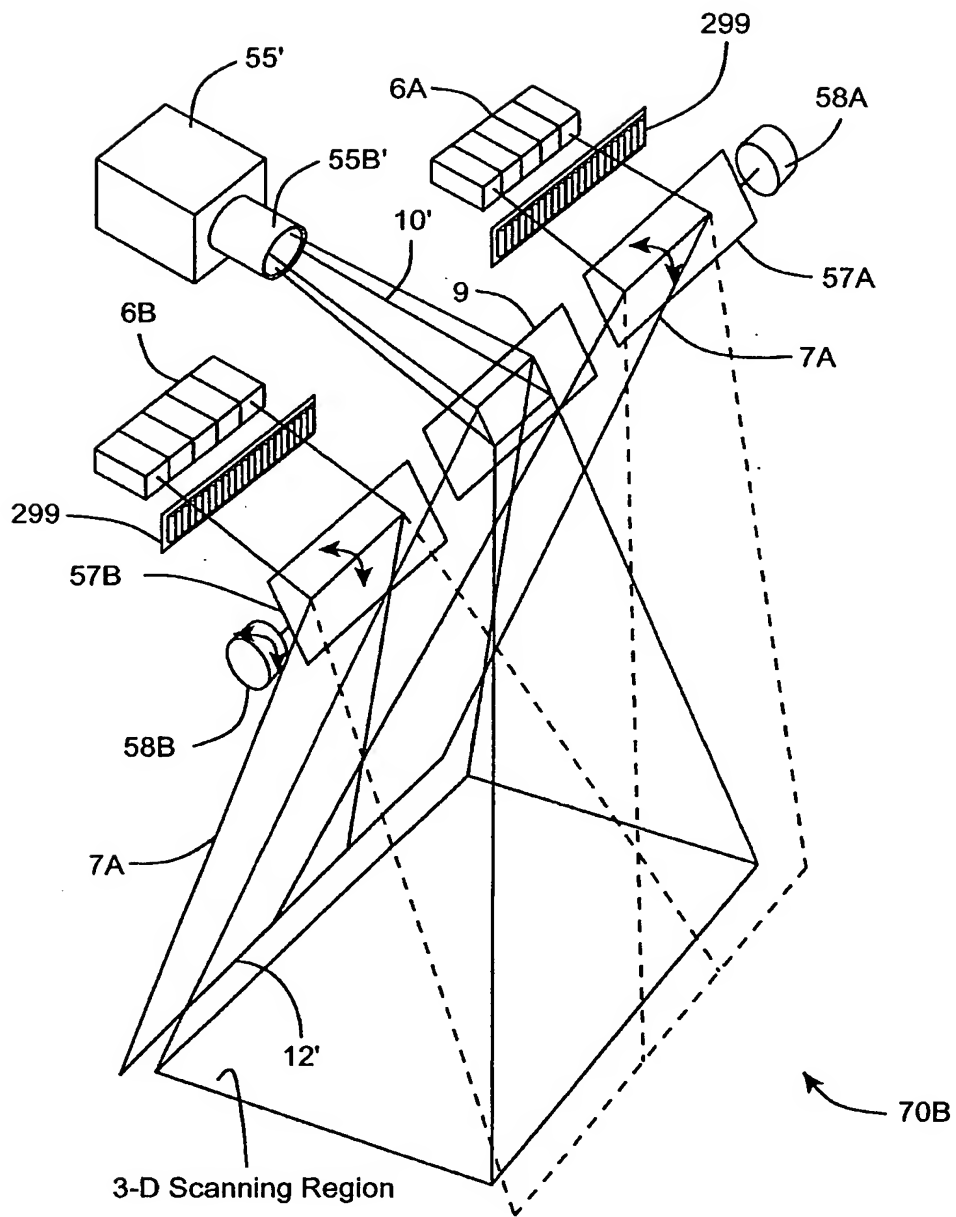


FIG. 5C1

- (1) Variable Focal Length Camera Lens
- (2) Fixed Focal Distance

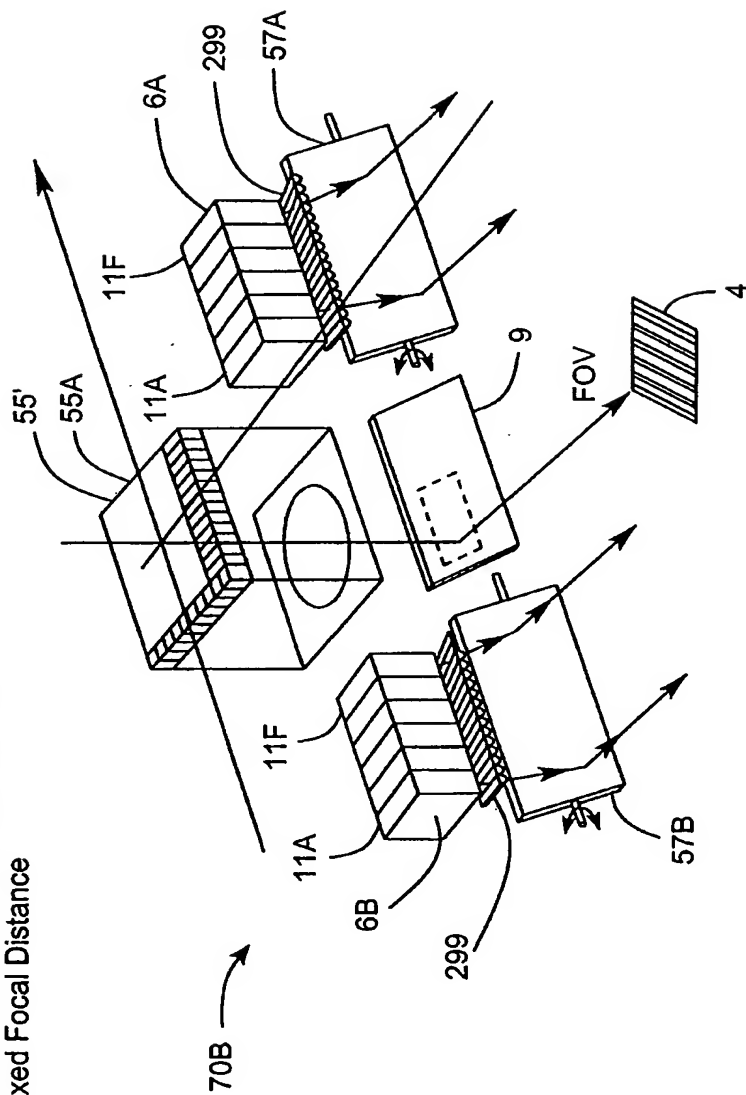


FIG. 5C2

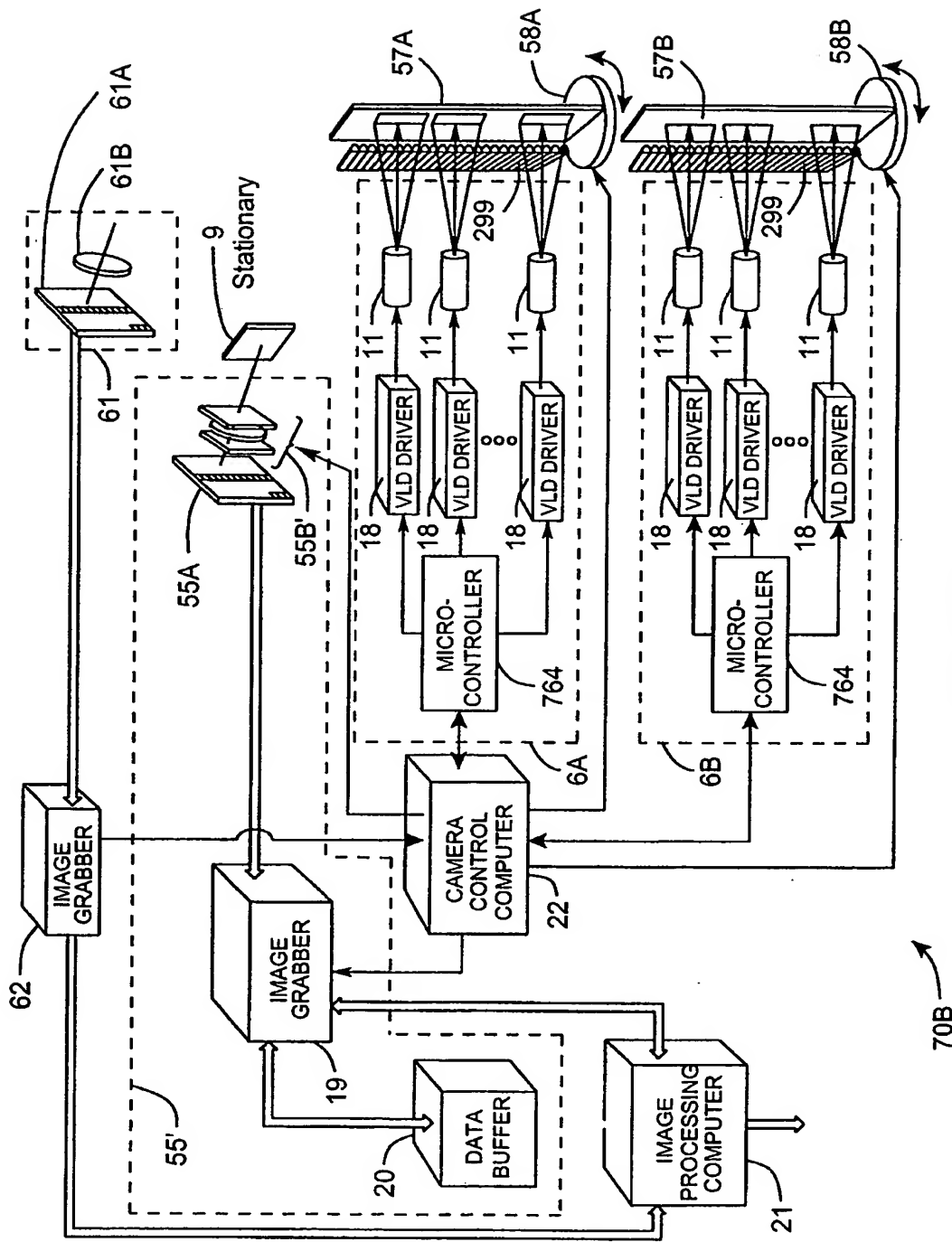


FIG. 5C3

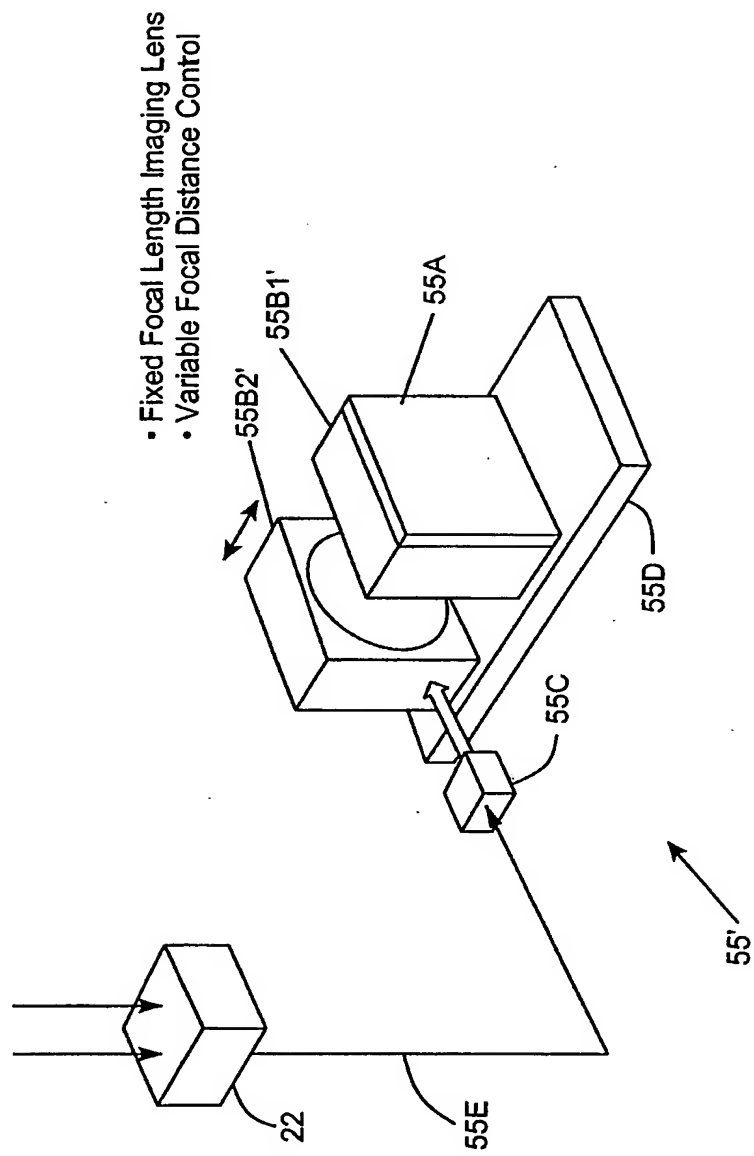


FIG. 5C4

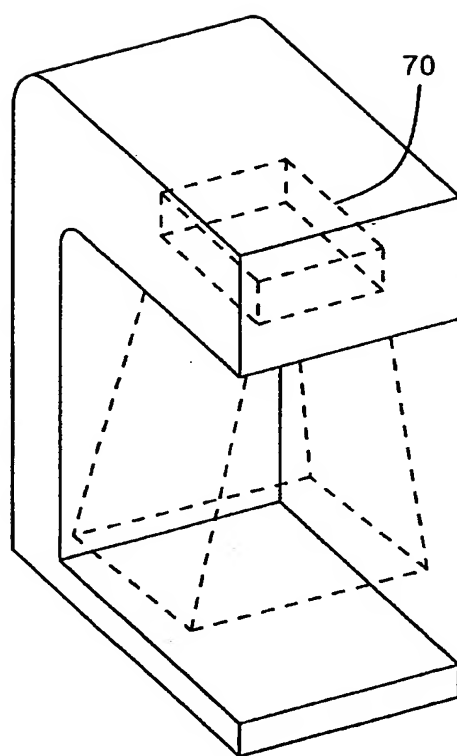


FIG. 5D

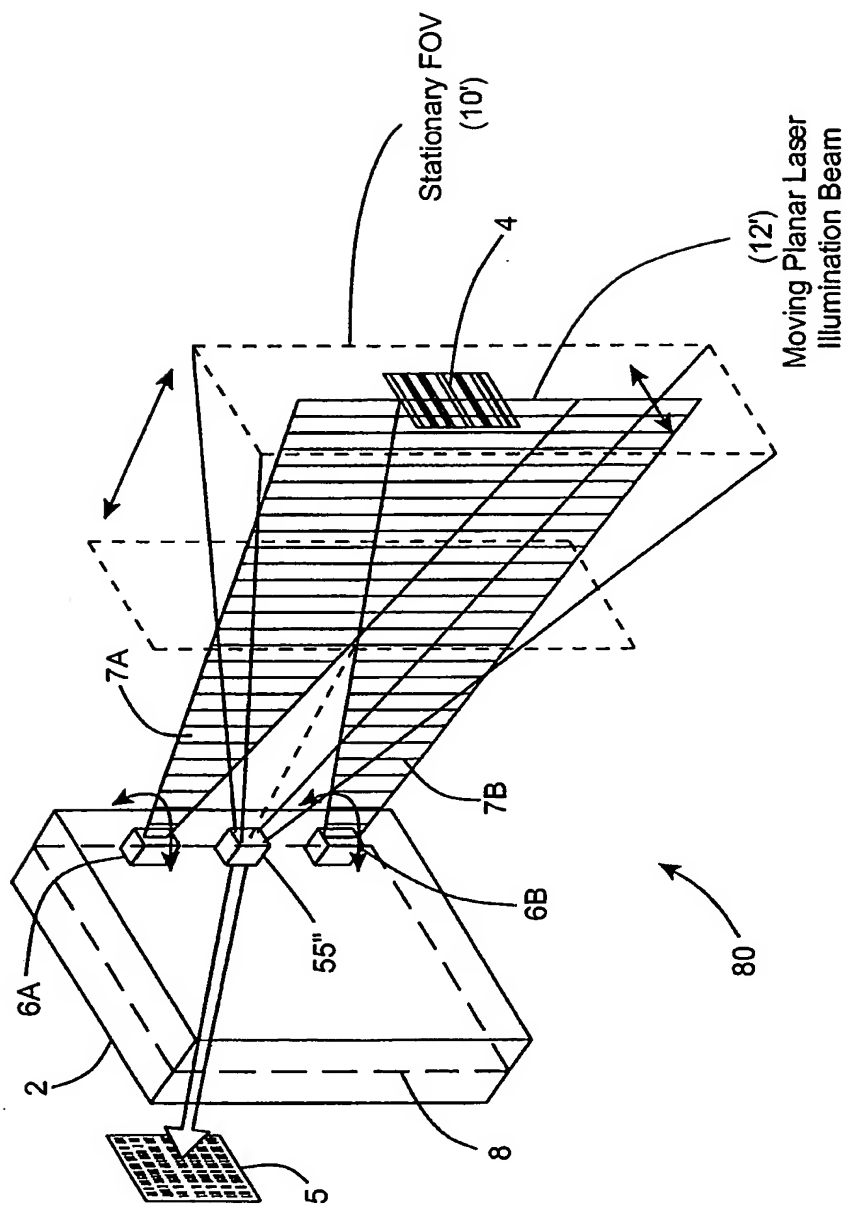


FIG. 6A

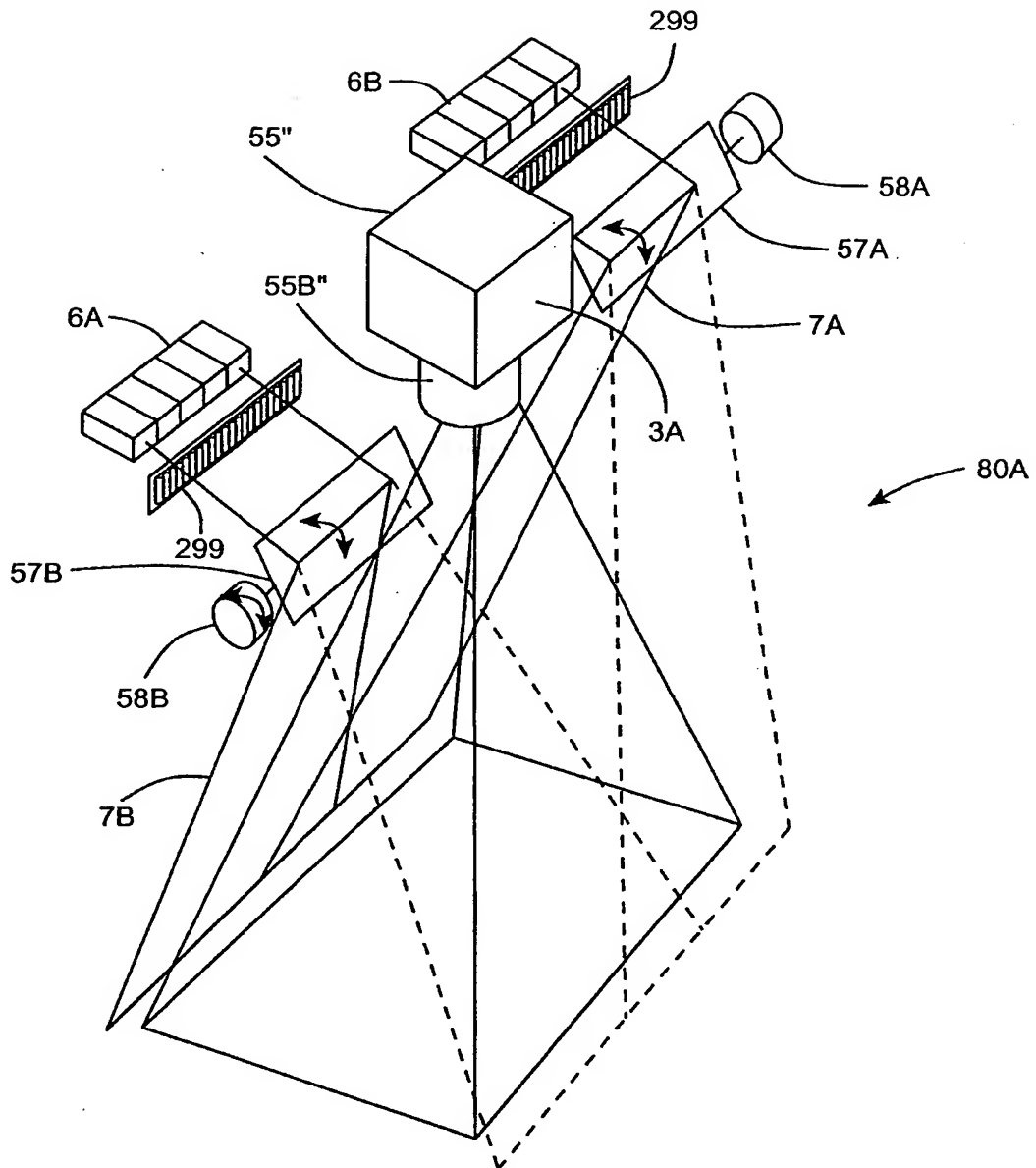


FIG. 6B1

- (1) Variable Focal Length Camera Lens
- (2) Variable Focal Distance

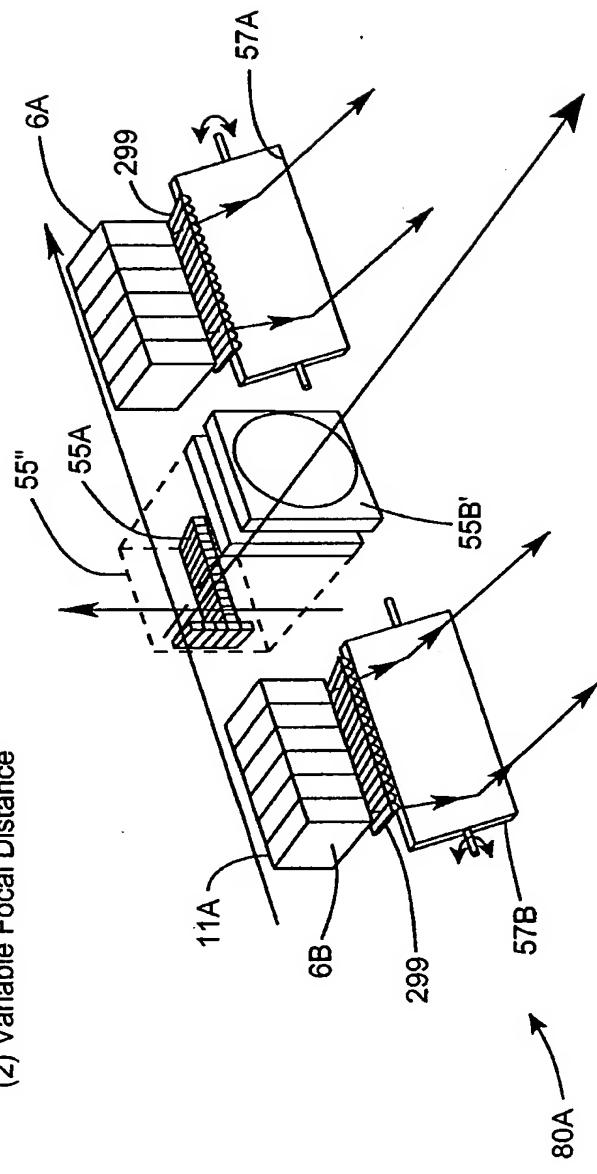


FIG. 6B2

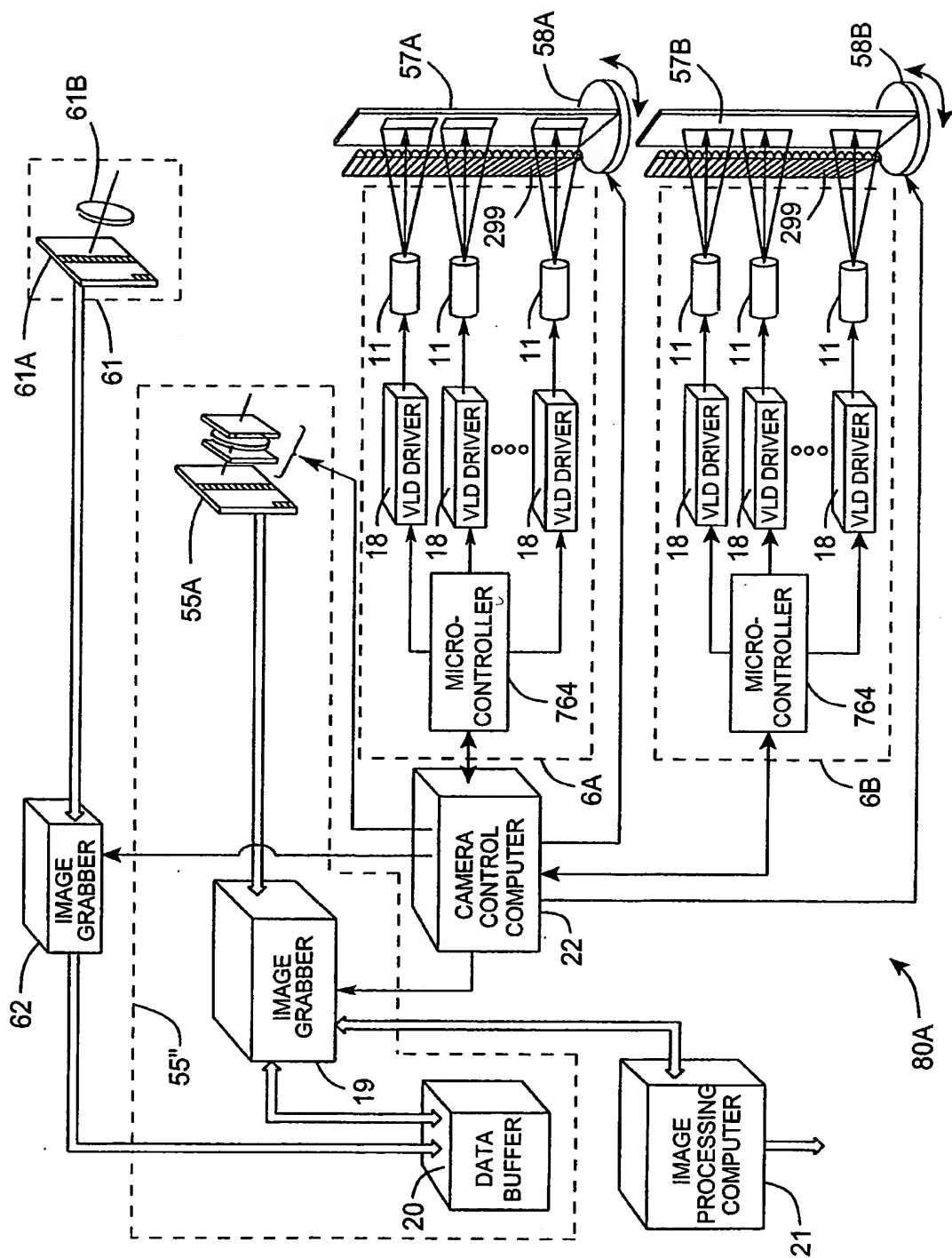


FIG. 6B3

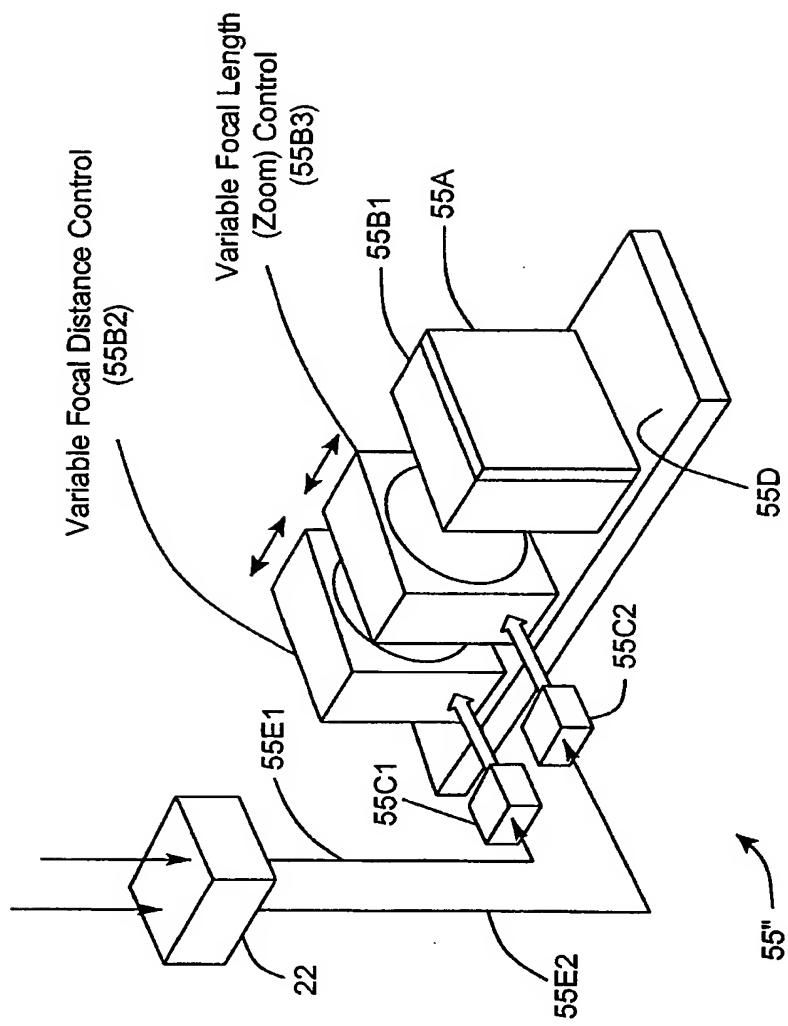


FIG. 6B4

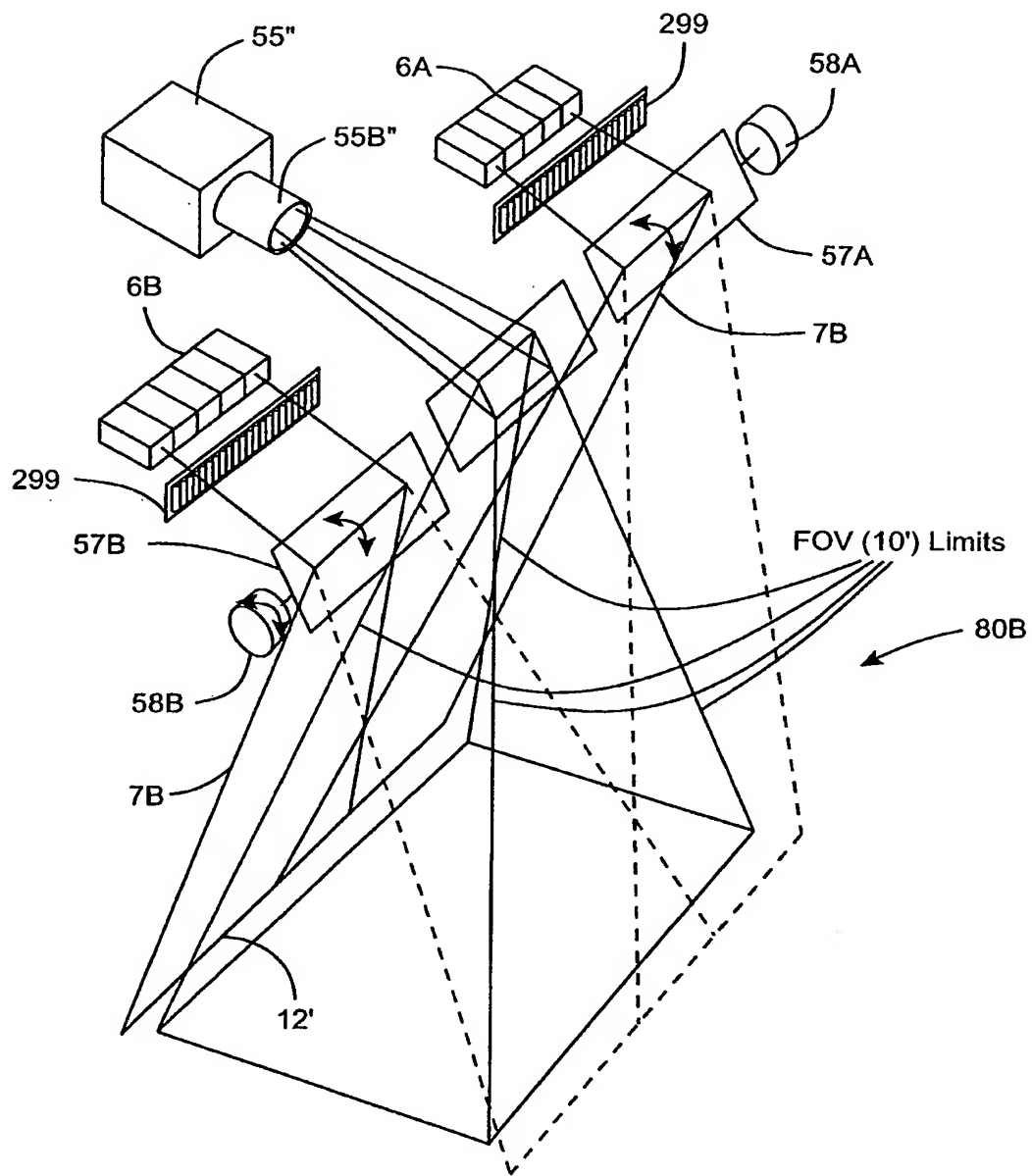


FIG. 6C1

- (1) Variable Focal Length Camera Lens
- (2) Variable Focal Distance

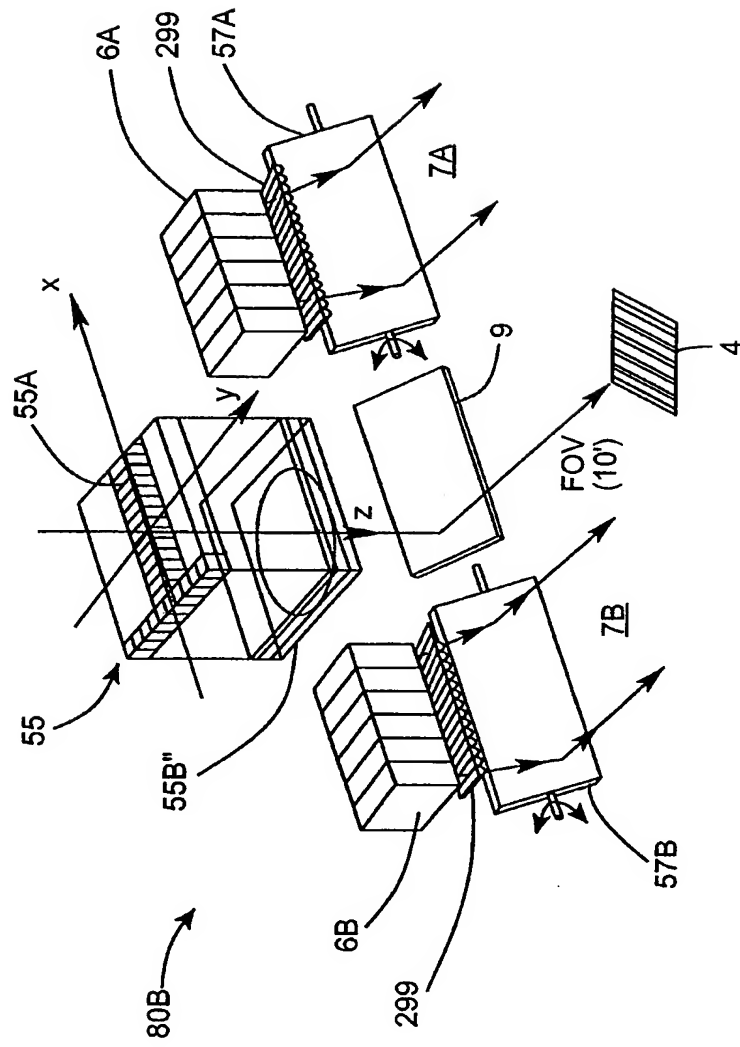


FIG. 6C2

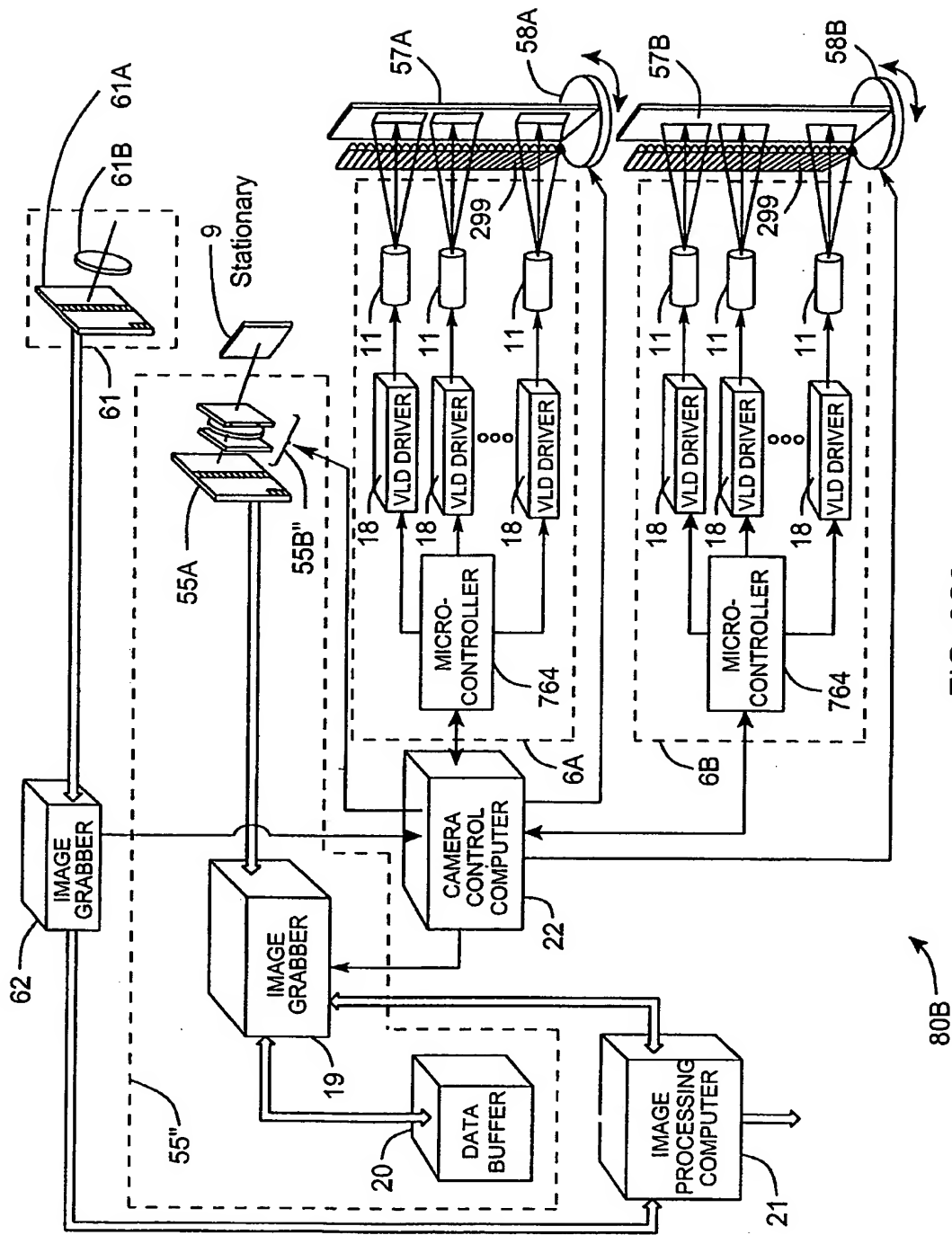


FIG. 6C3

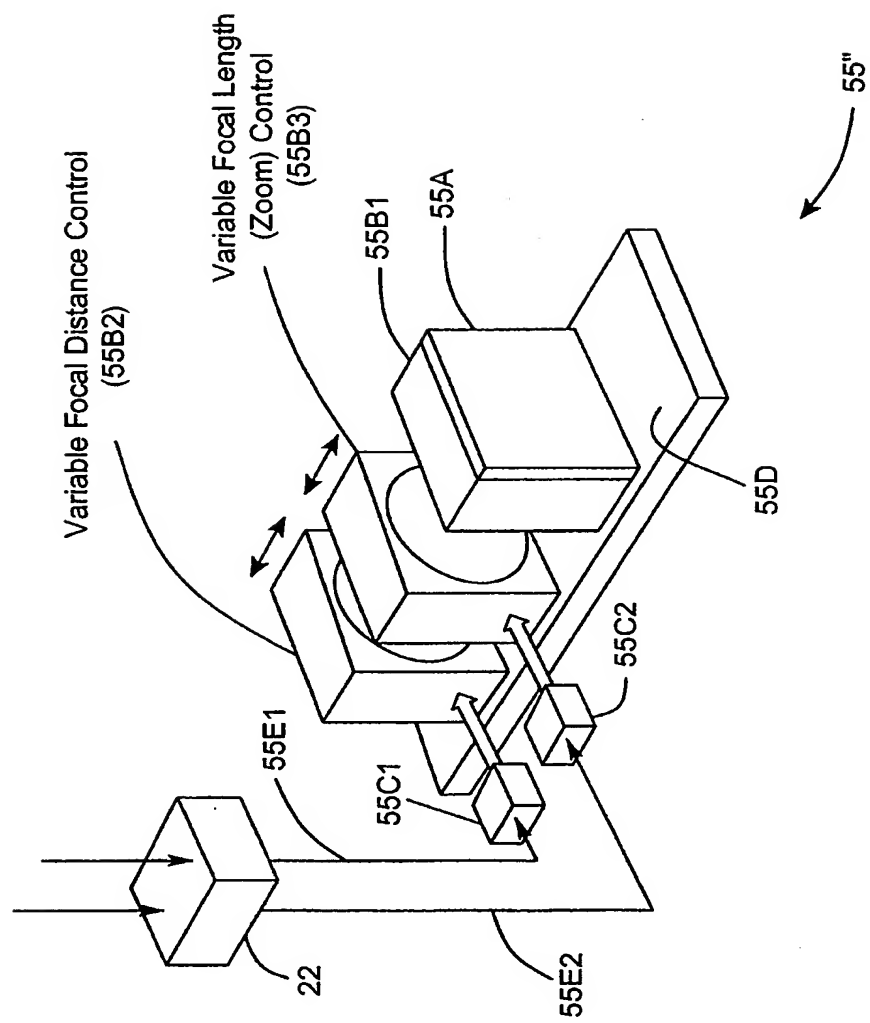


FIG. 6C4

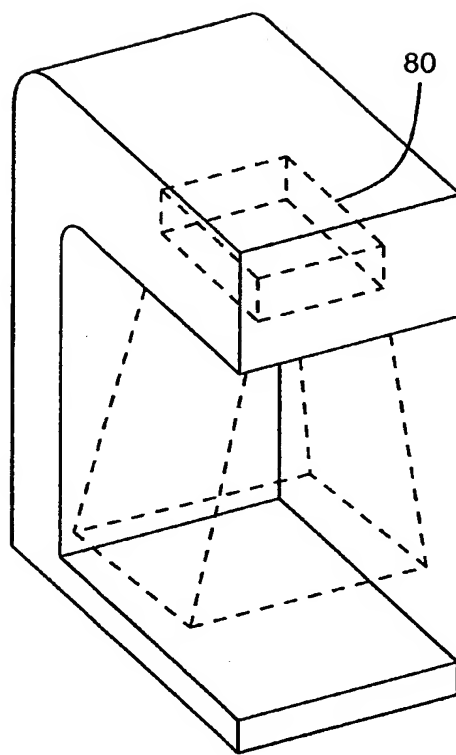


FIG. 6C5

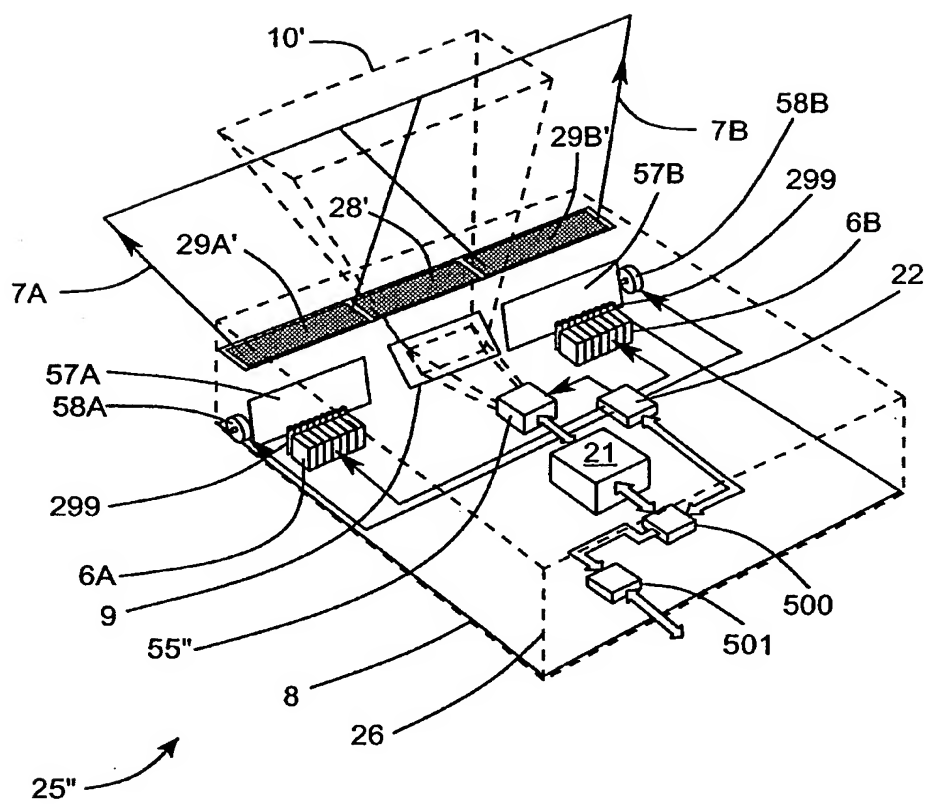


FIG. 6D1

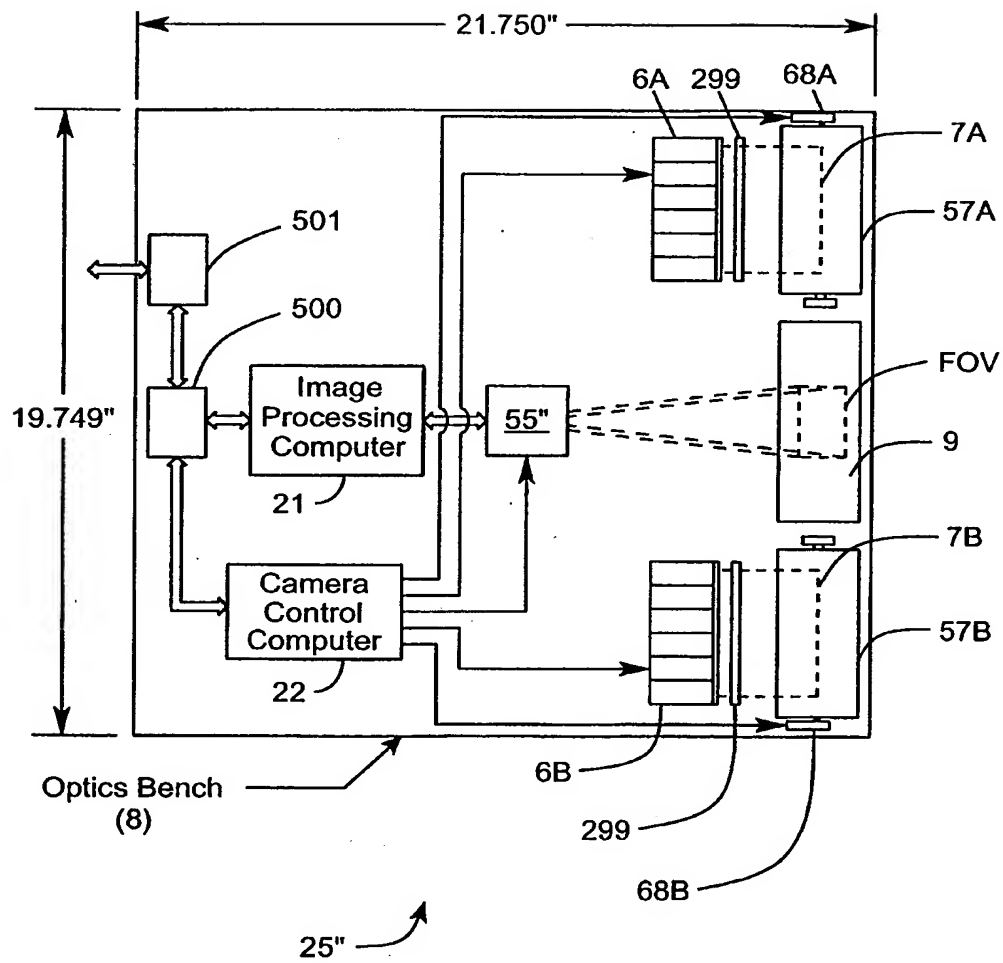


FIG. 6D2

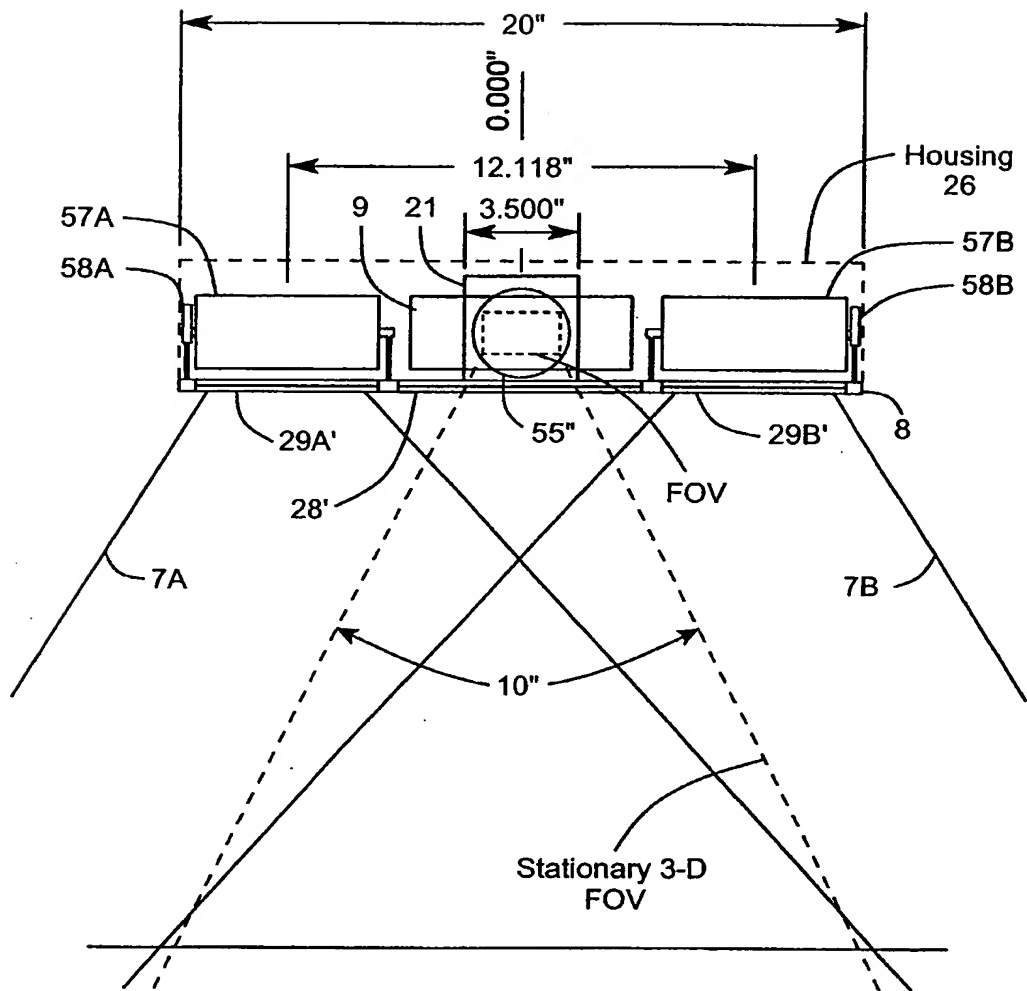


FIG. 6D3

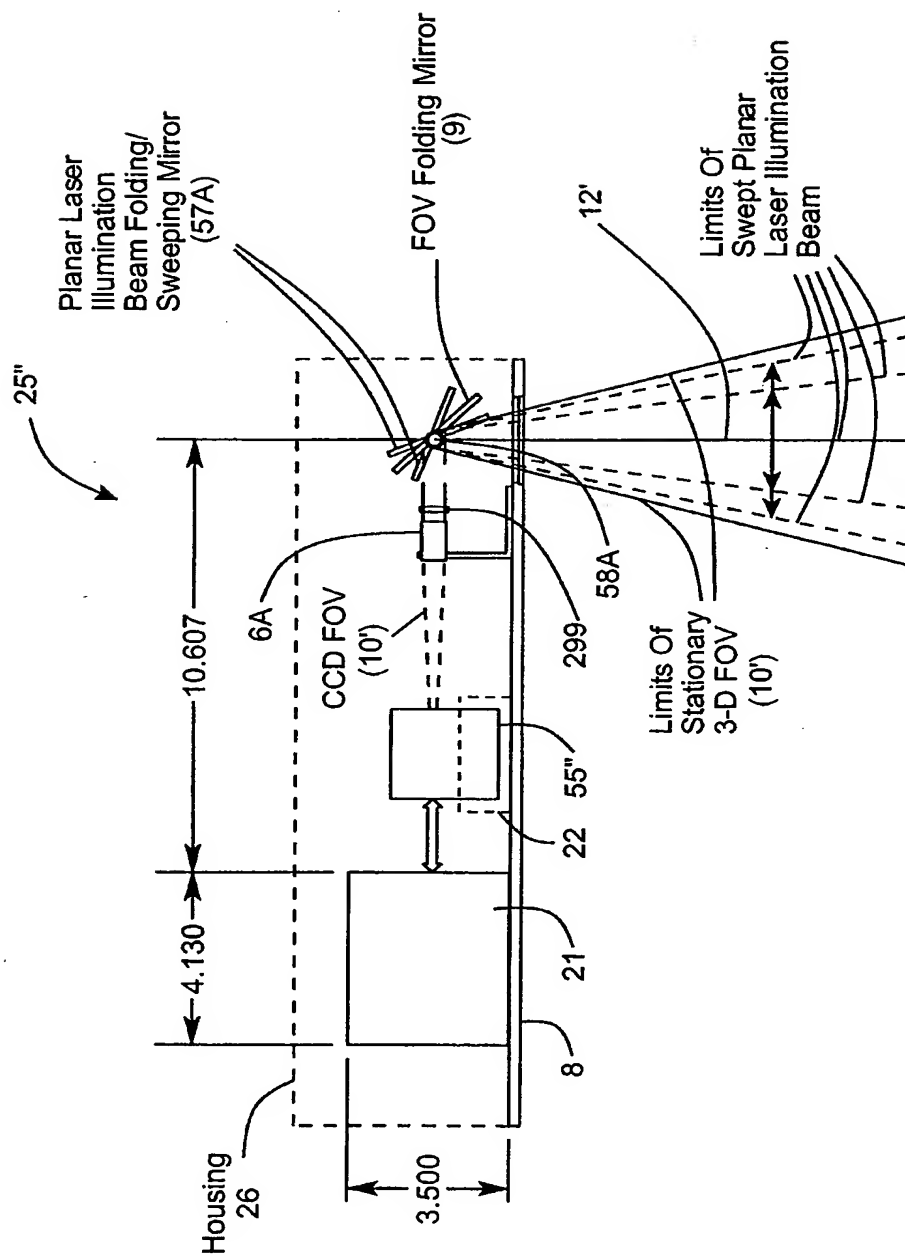


FIG. 6D4

* Variable FOV

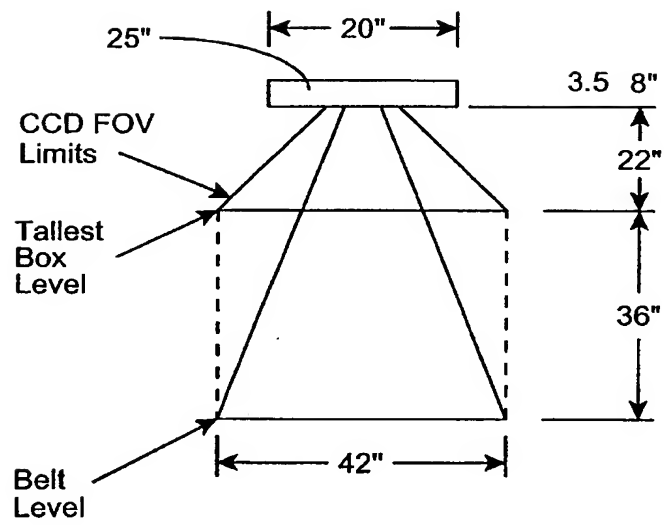


FIG. 6D5

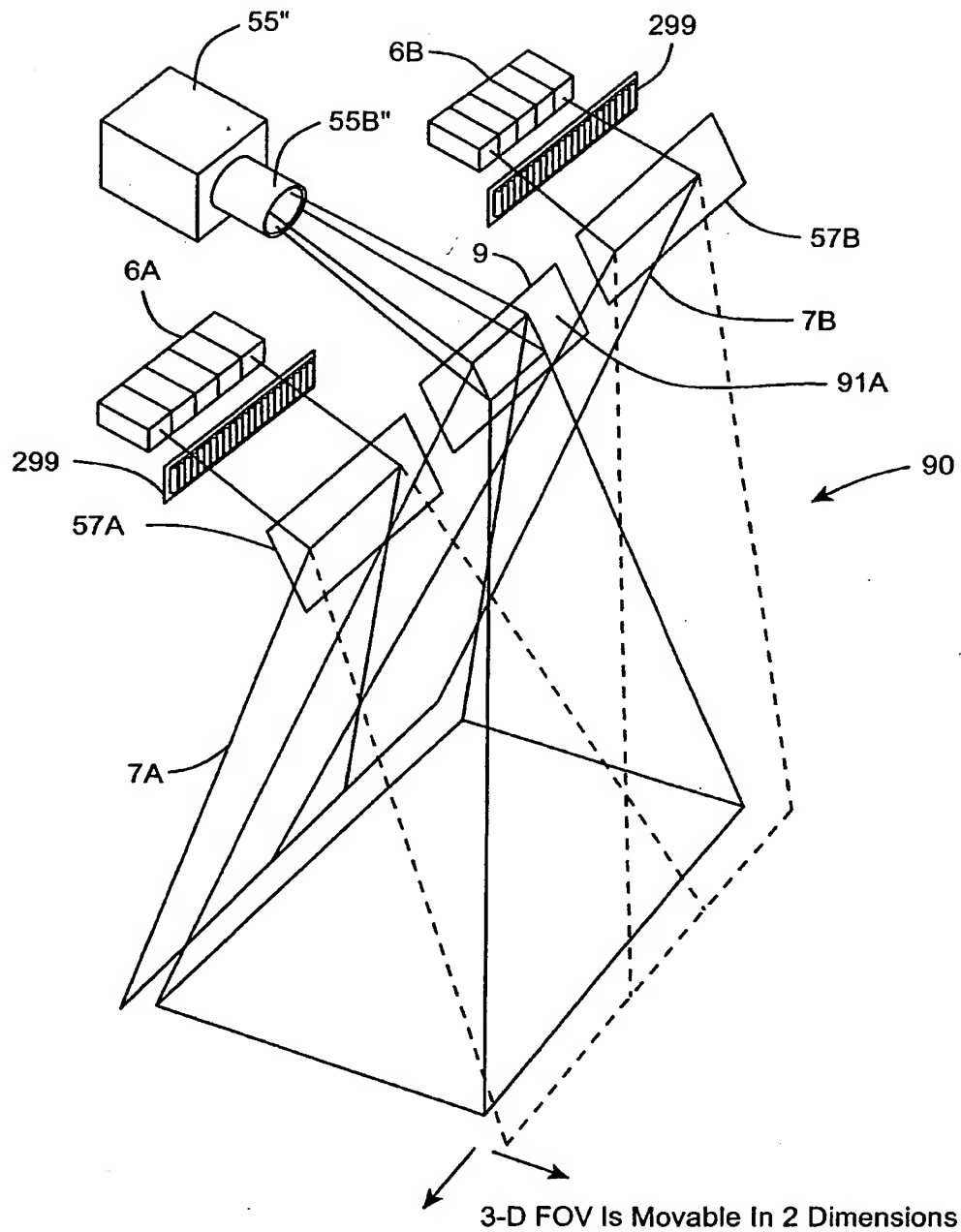


FIG. 6E1

- (1) Variable Focal Length Camera Lens
- (2) Variable Focal Distance

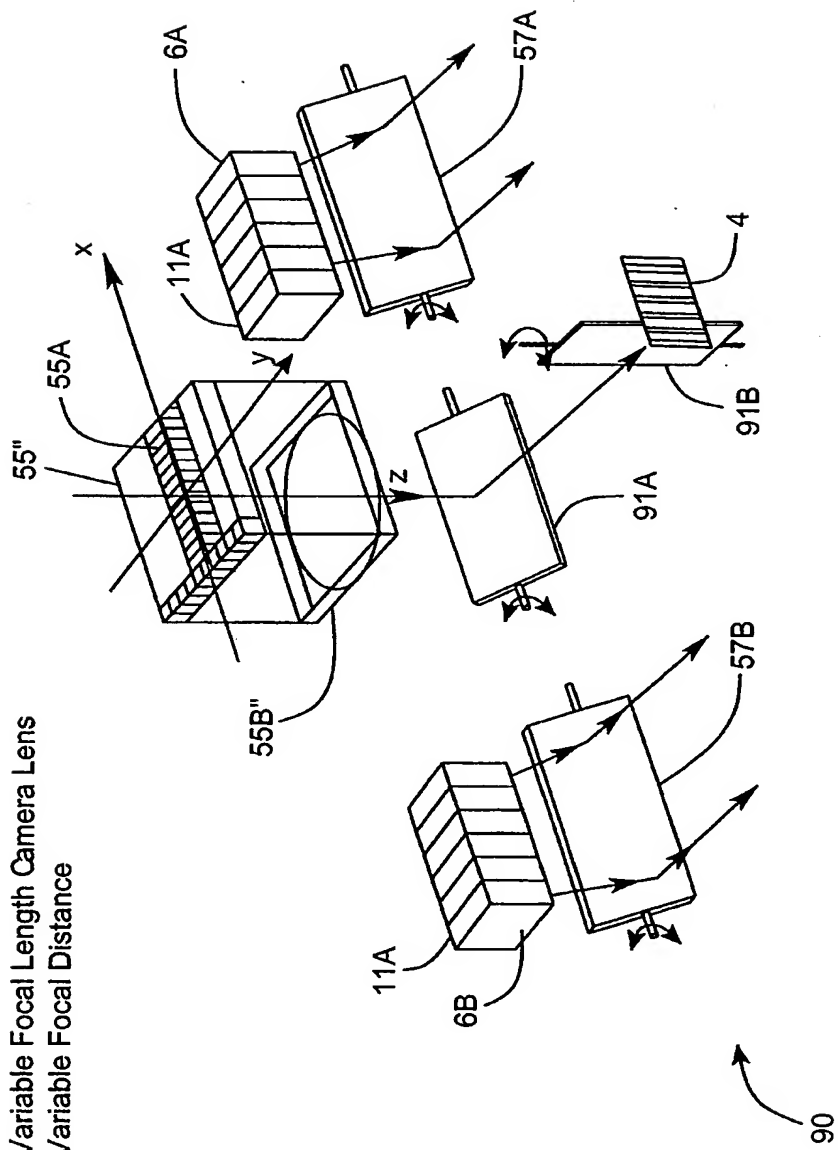
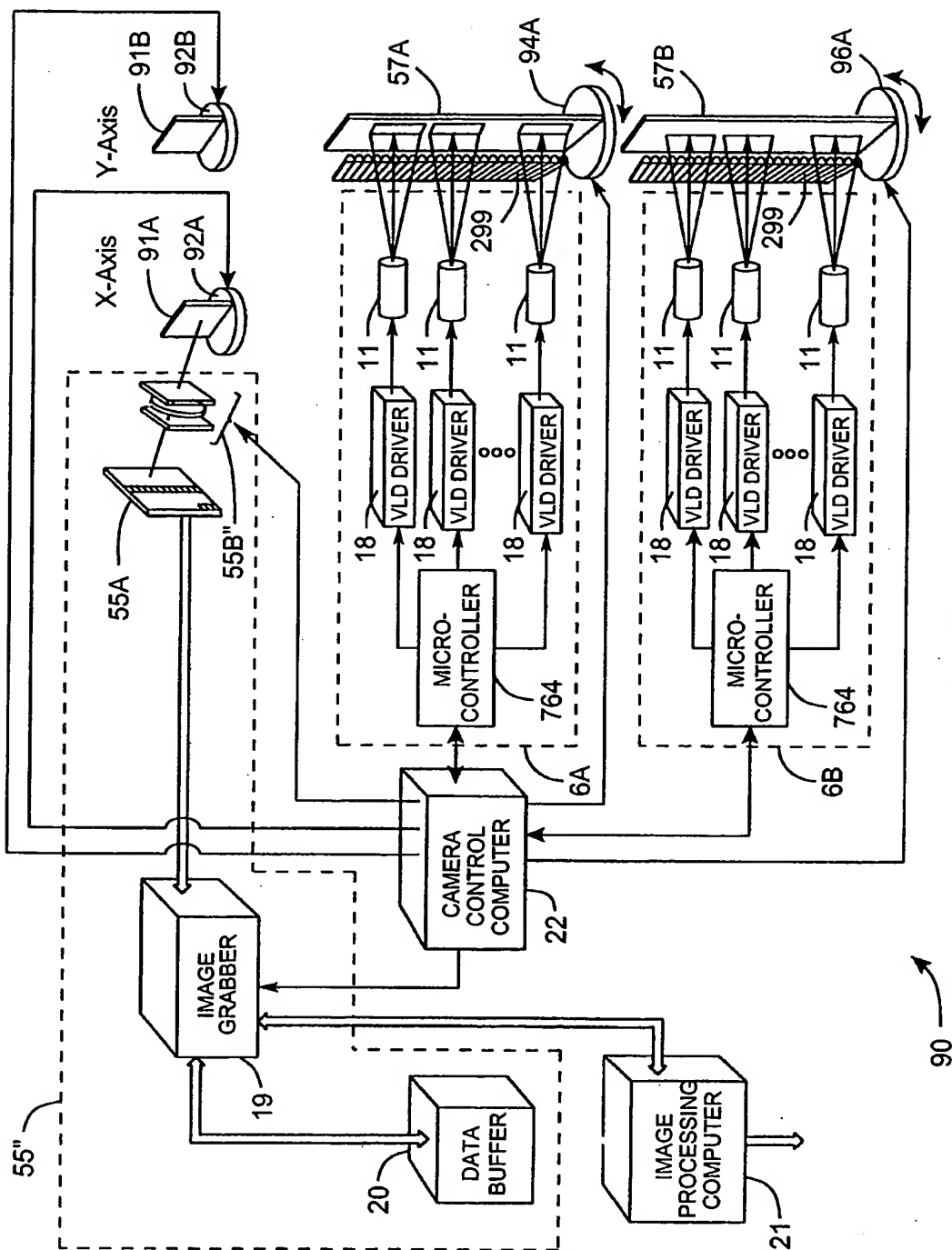


FIG. 6E2



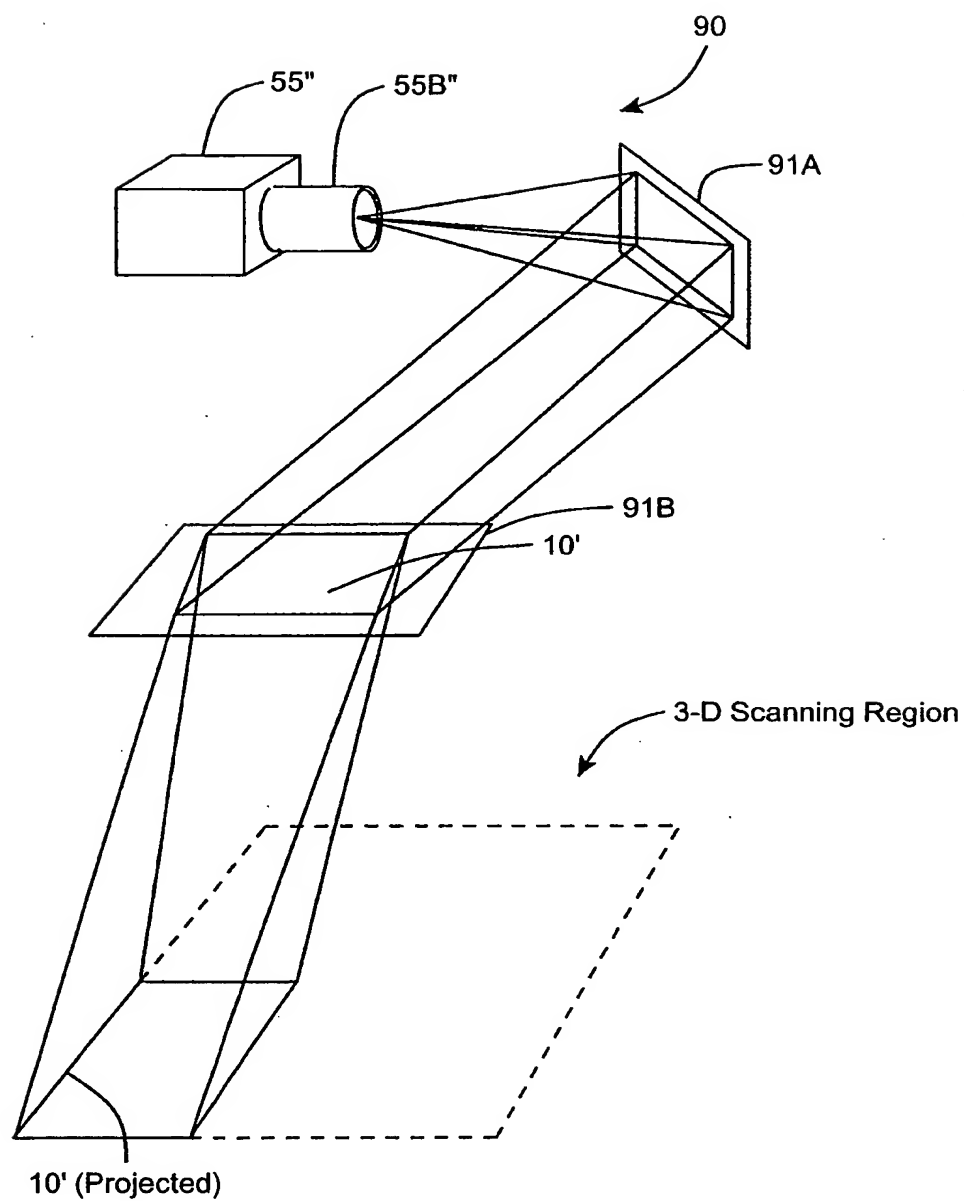


FIG. 6E4

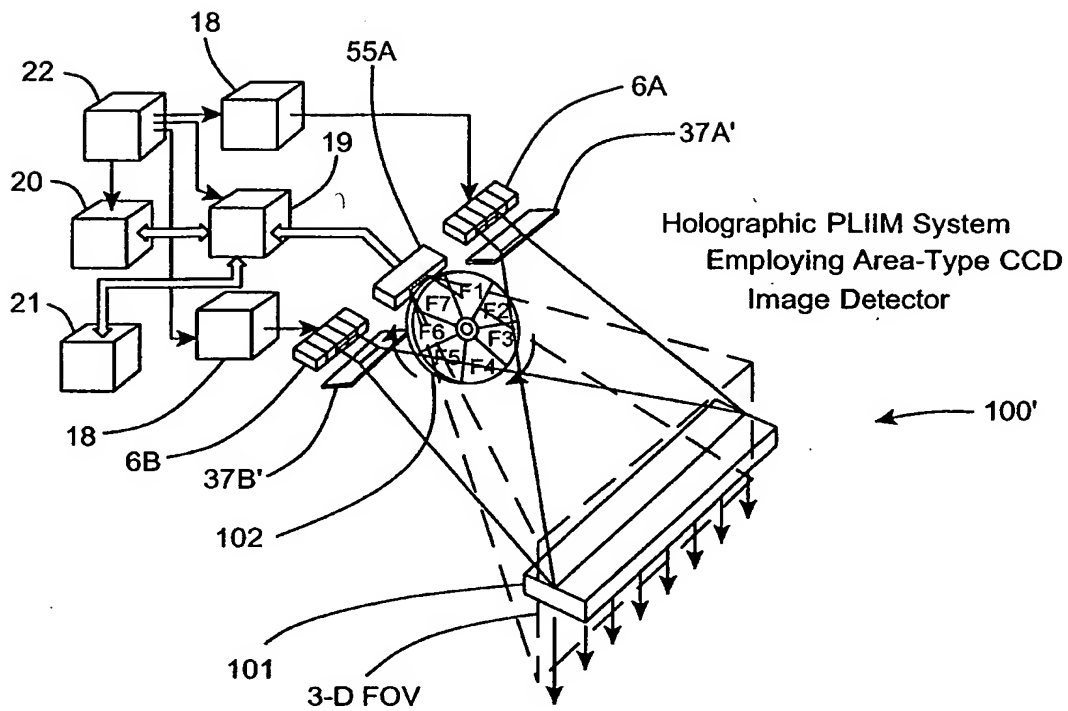


FIG. 8A

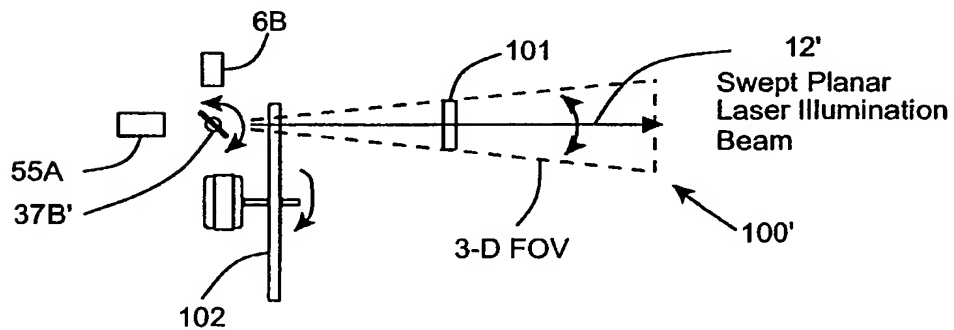


FIG. 8B

1-D Scanner Embodiment

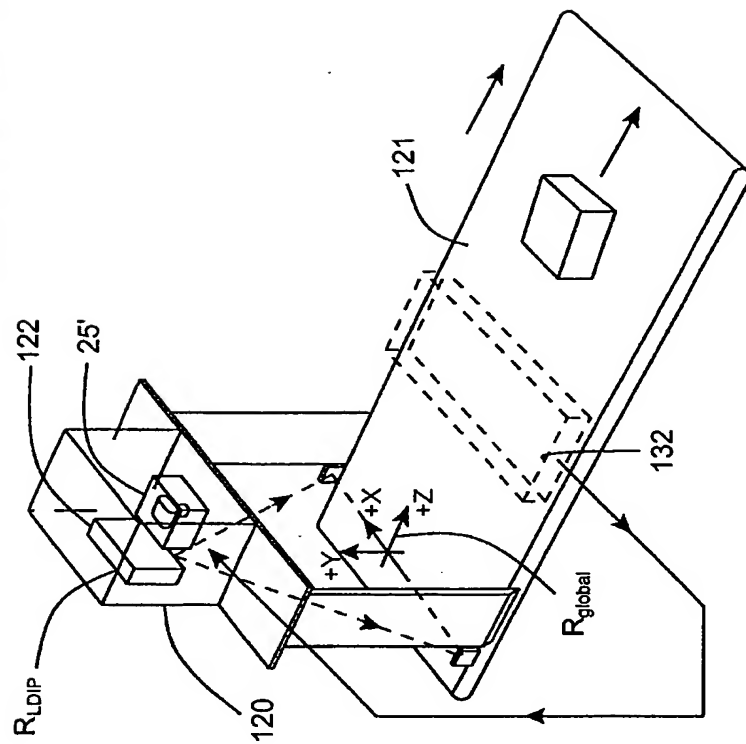


FIG. 9

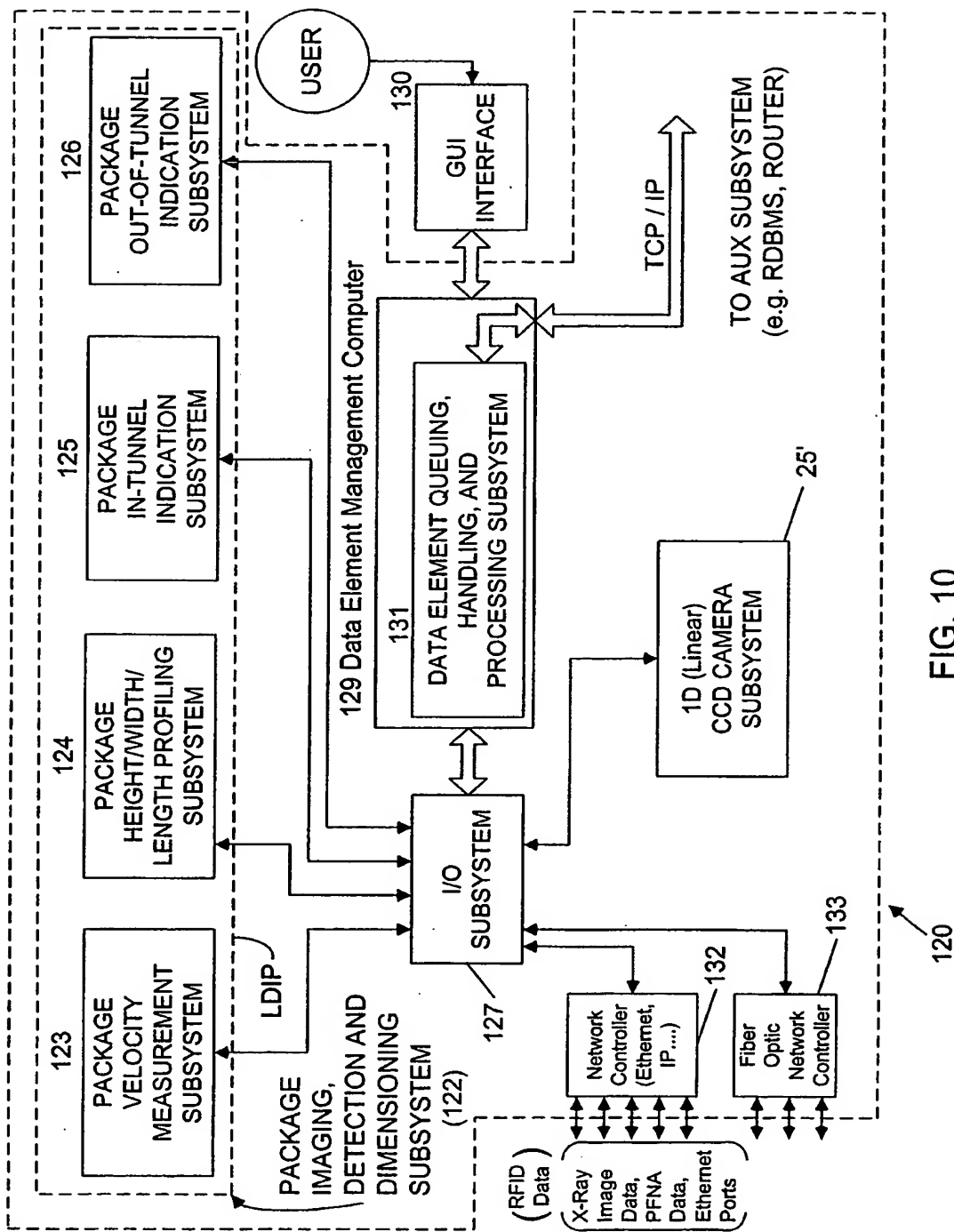


FIG. 10

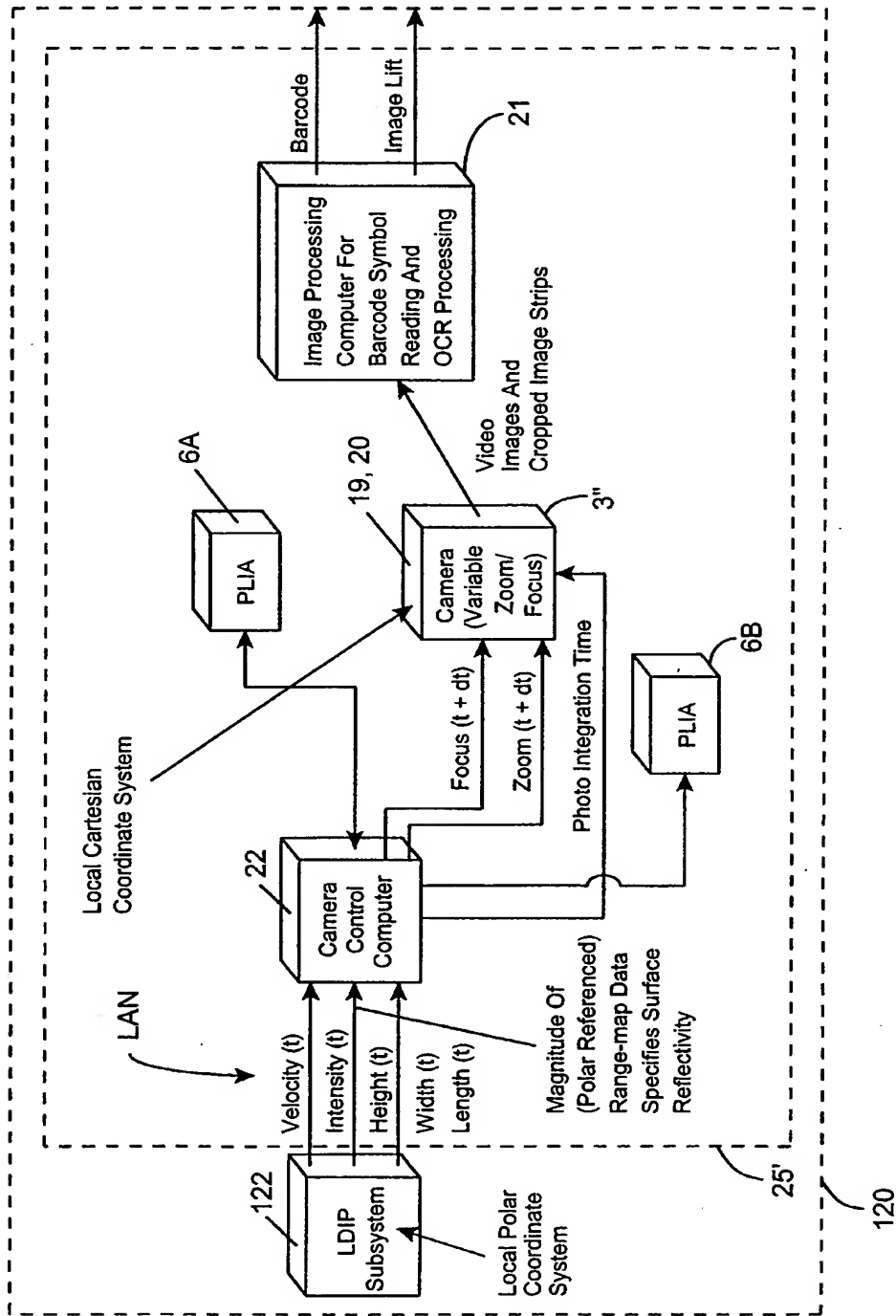


FIG. 11

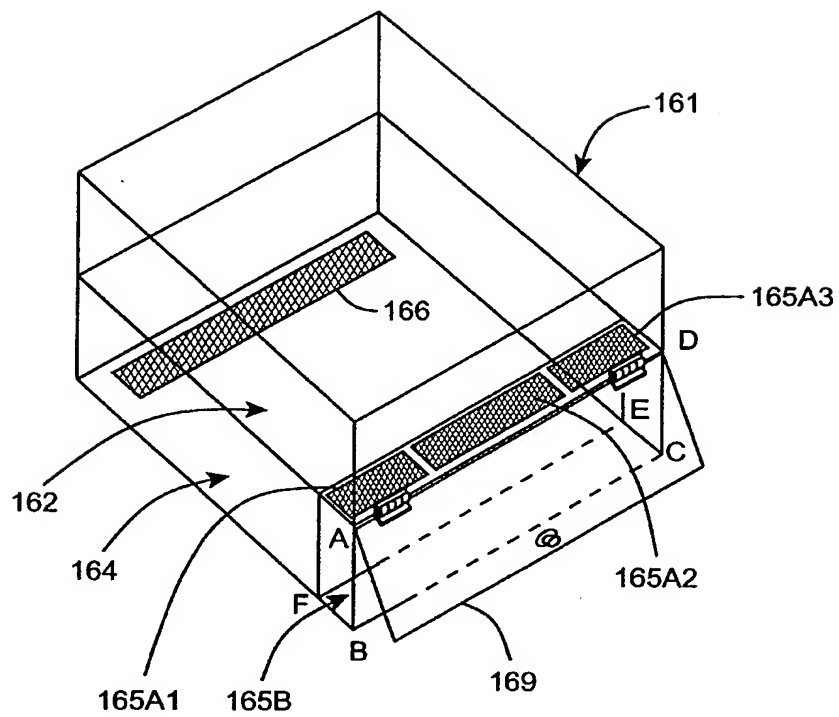


FIG. 12A

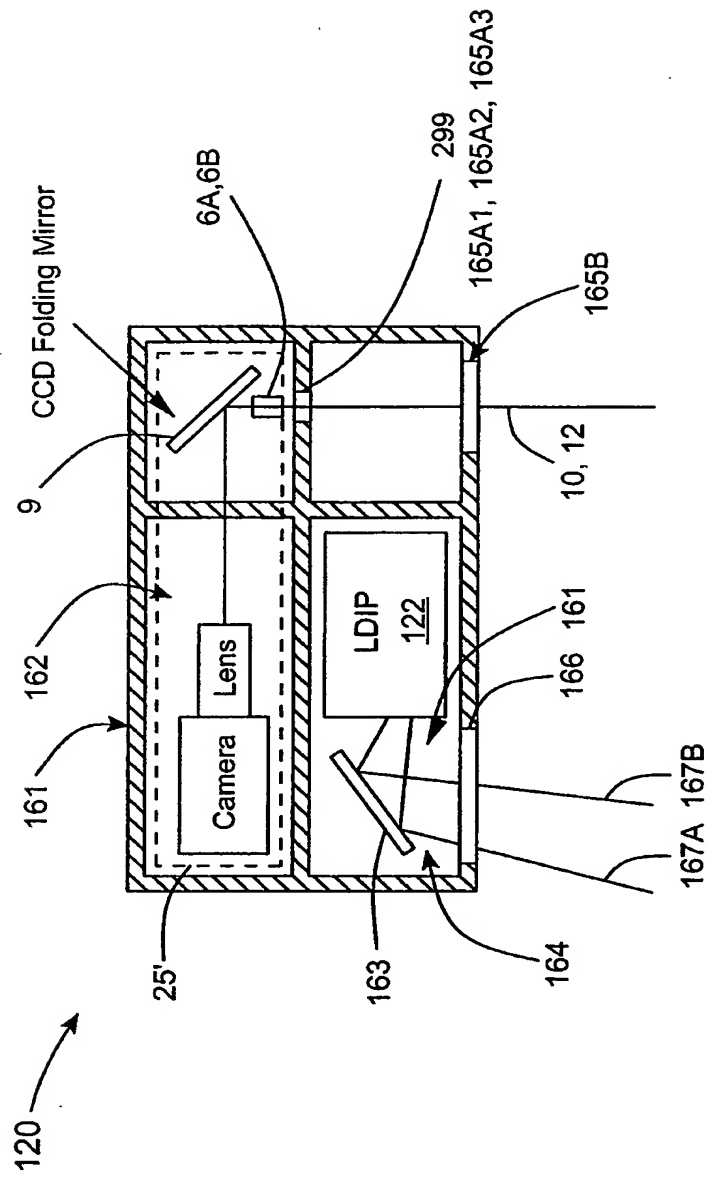


FIG. 12B

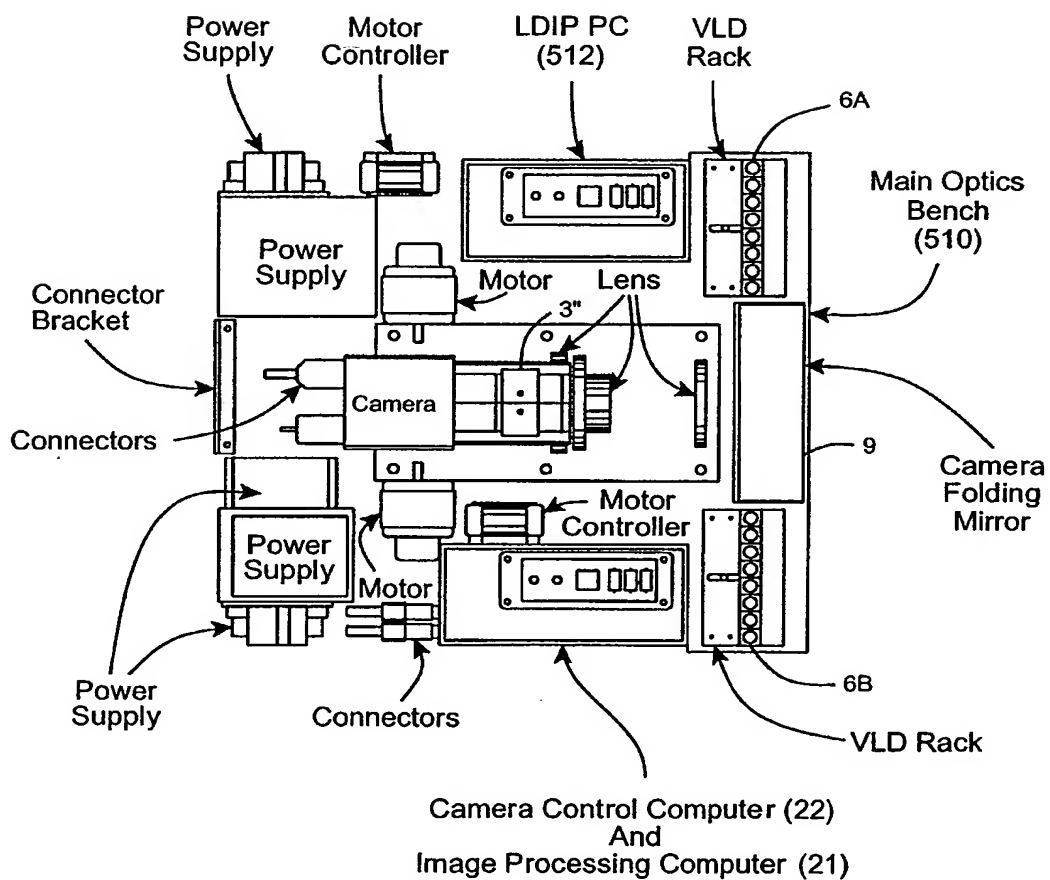


FIG. 12C

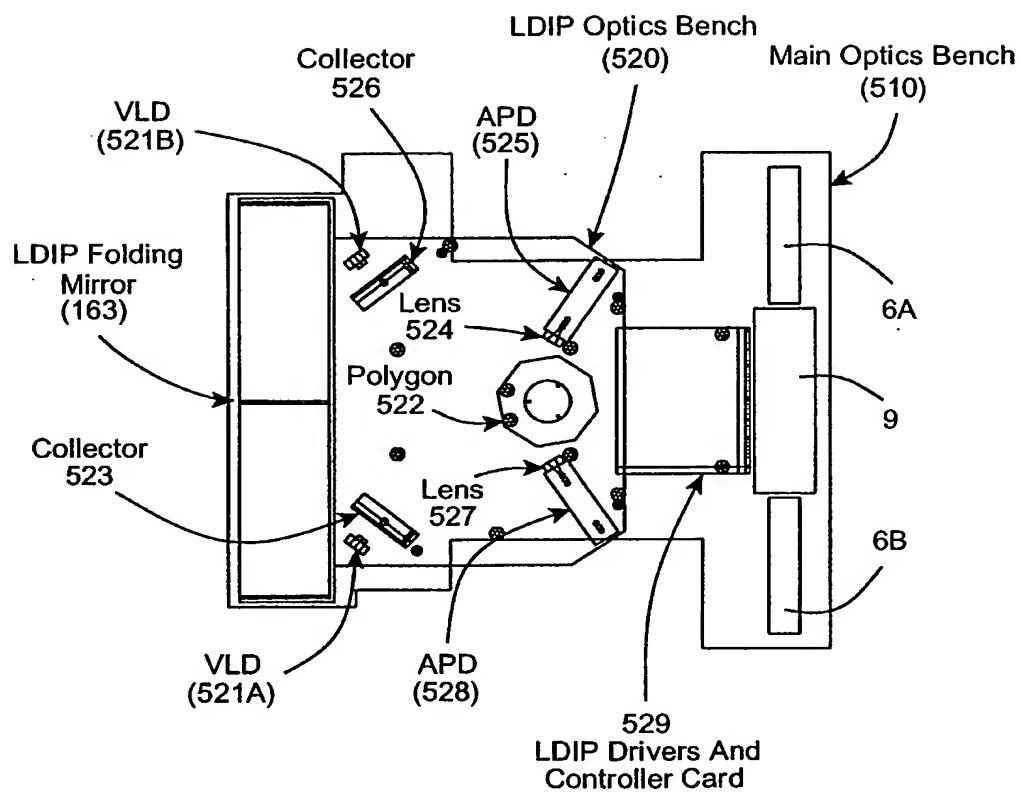
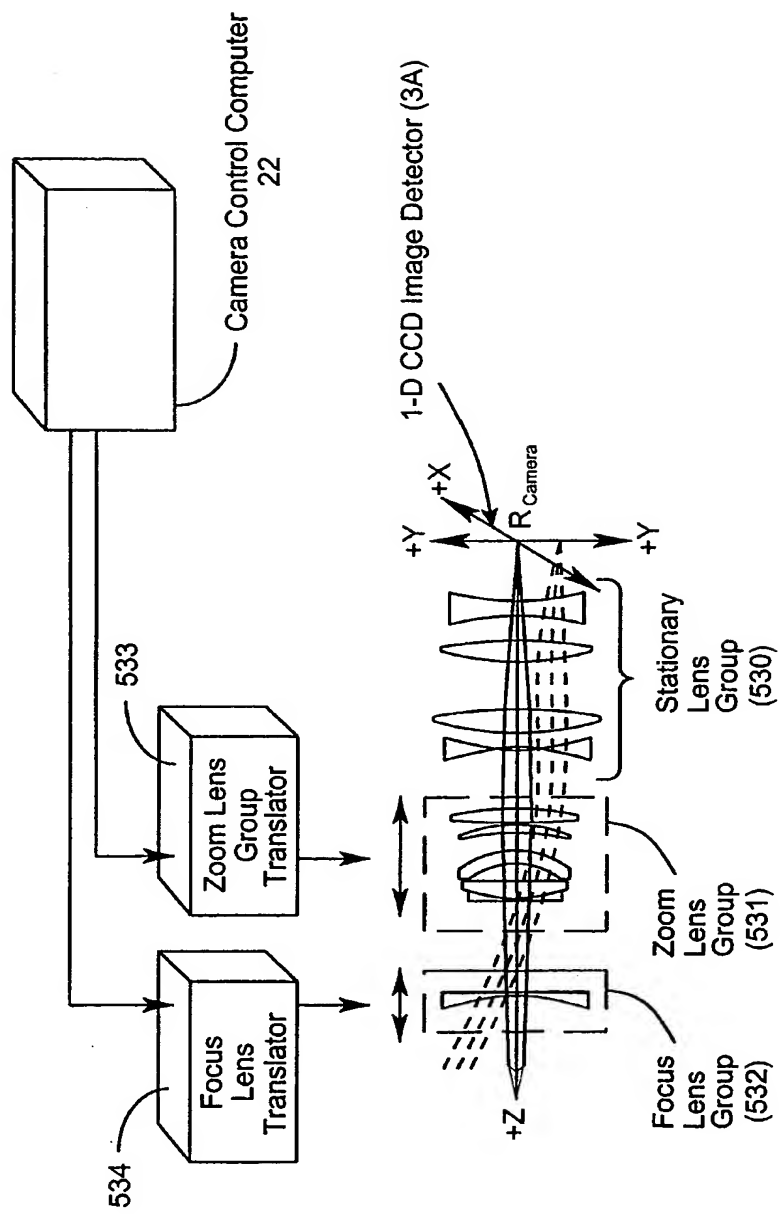


FIG. 12D



Main Optics Lens Groups

FIG. 12E

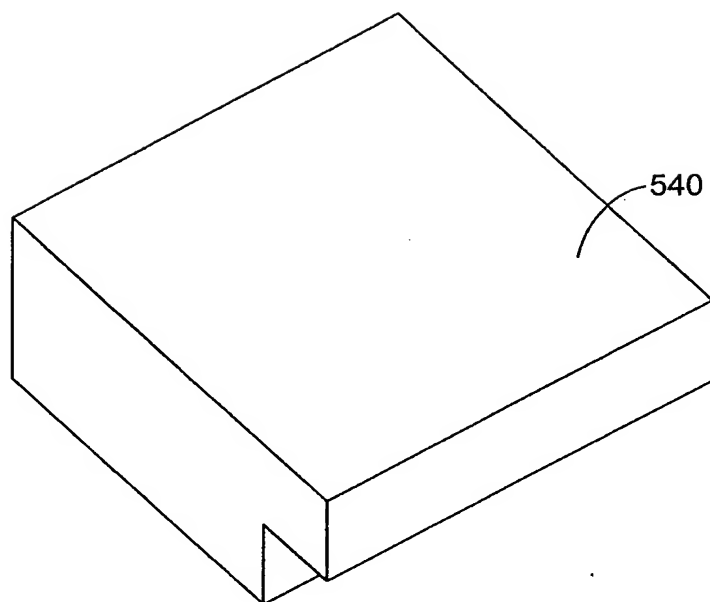


FIG. 13B

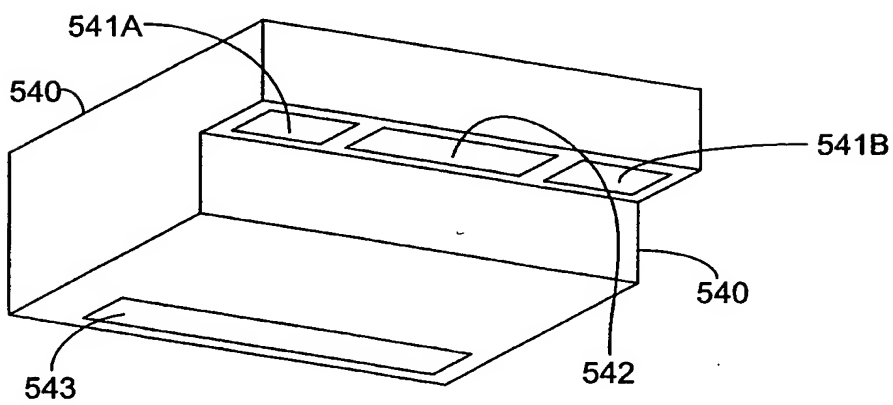


FIG. 13C

PLIIM-BASED PACKAGE IDENTIFICATION AND
DIMENSIONING (PID) SYSTEM

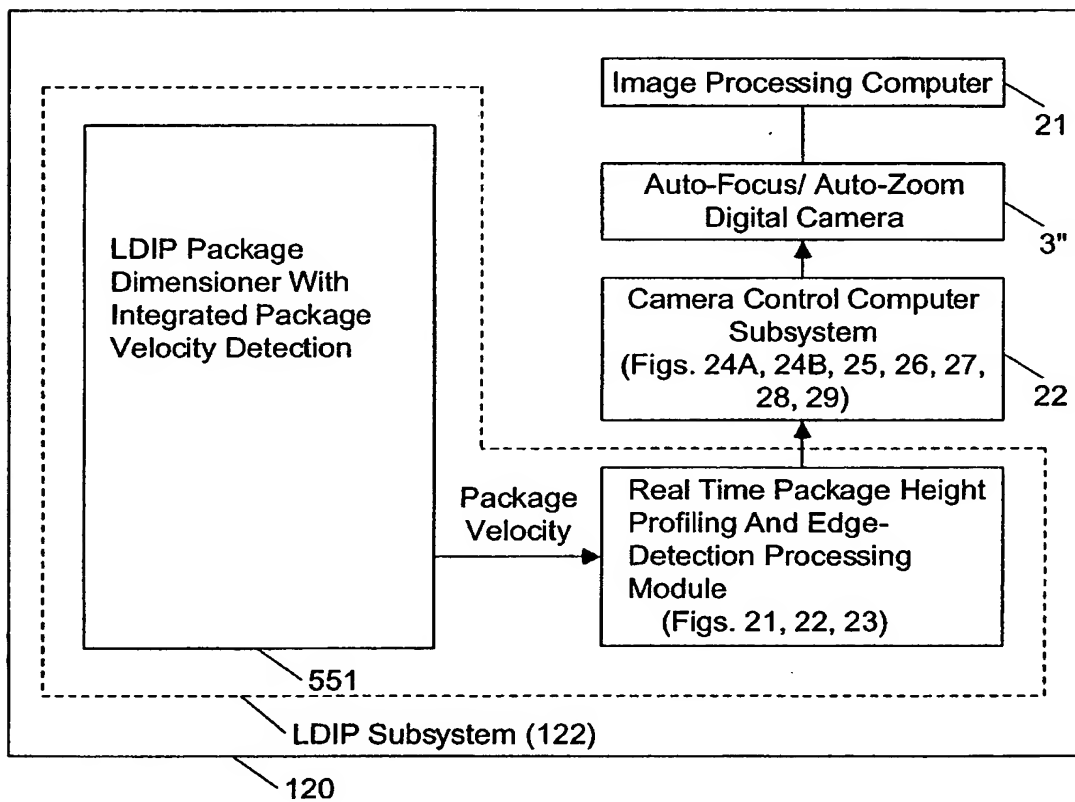


FIG. 14

LDIP REAL-TIME PACKAGE HEIGHT PROFILE AND EDGE DETECTION METHOD

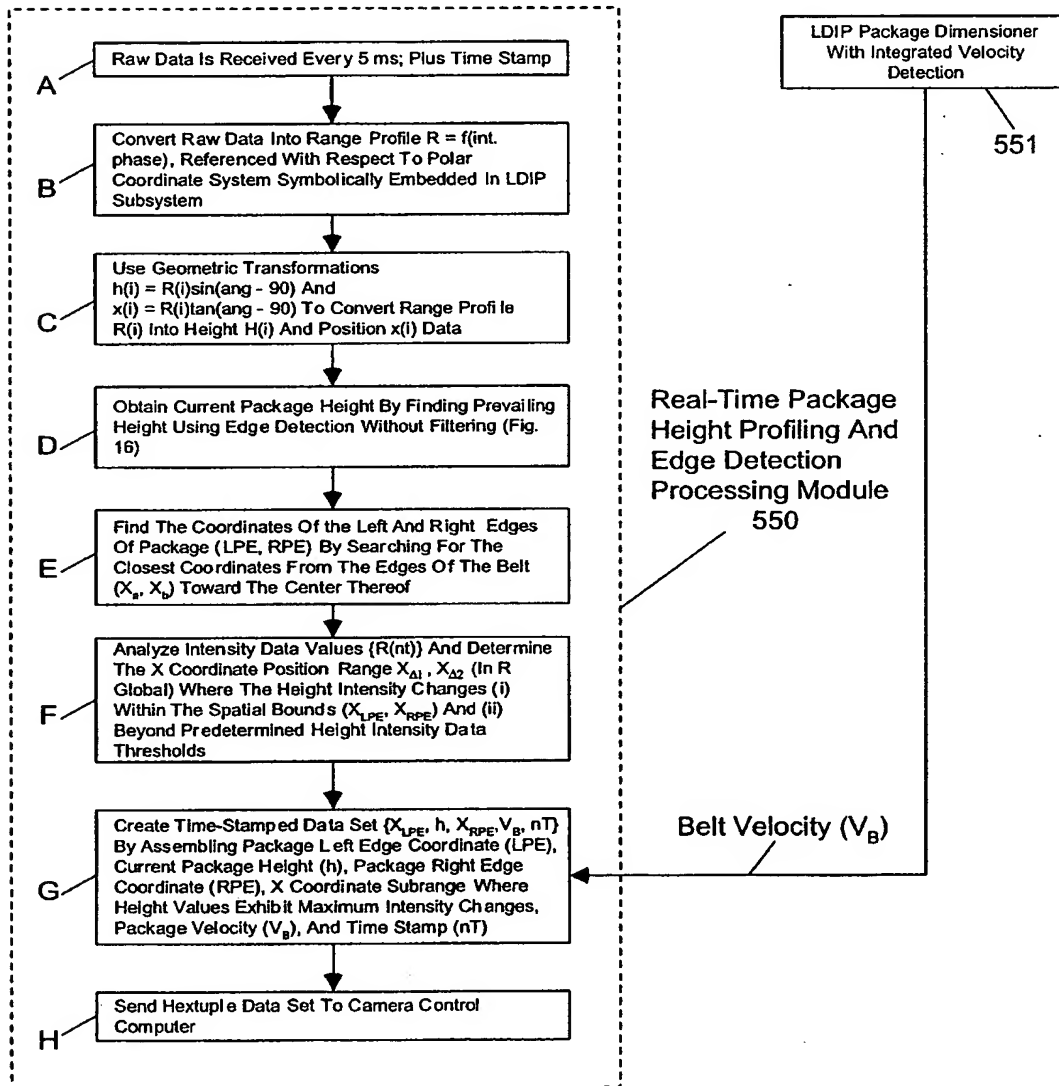
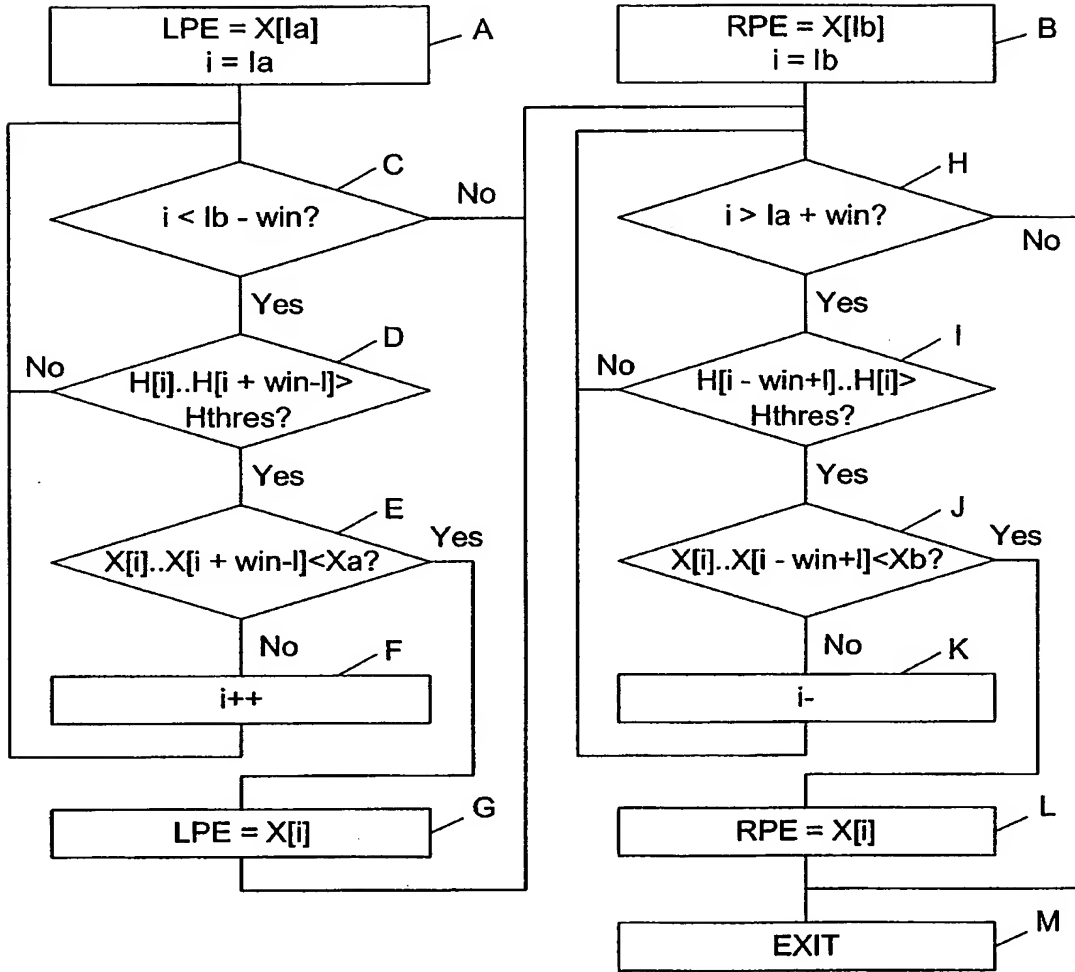


FIG. 15

LDIP REAL-TIME PACKAGE EDGE DETECTION



Xa = Location Of Belt Left Edge; Xb = Location Of Belt Right Edge
 la = Belt Left Edge Pixel; lb = Belt Right Edge Pixel
 LPE = Left package Edge; RPE = Right Package Edge
 H[] = Pixel Height Array; X[] = Pixel Location Array
 win = Package detection Window

FIG. 16

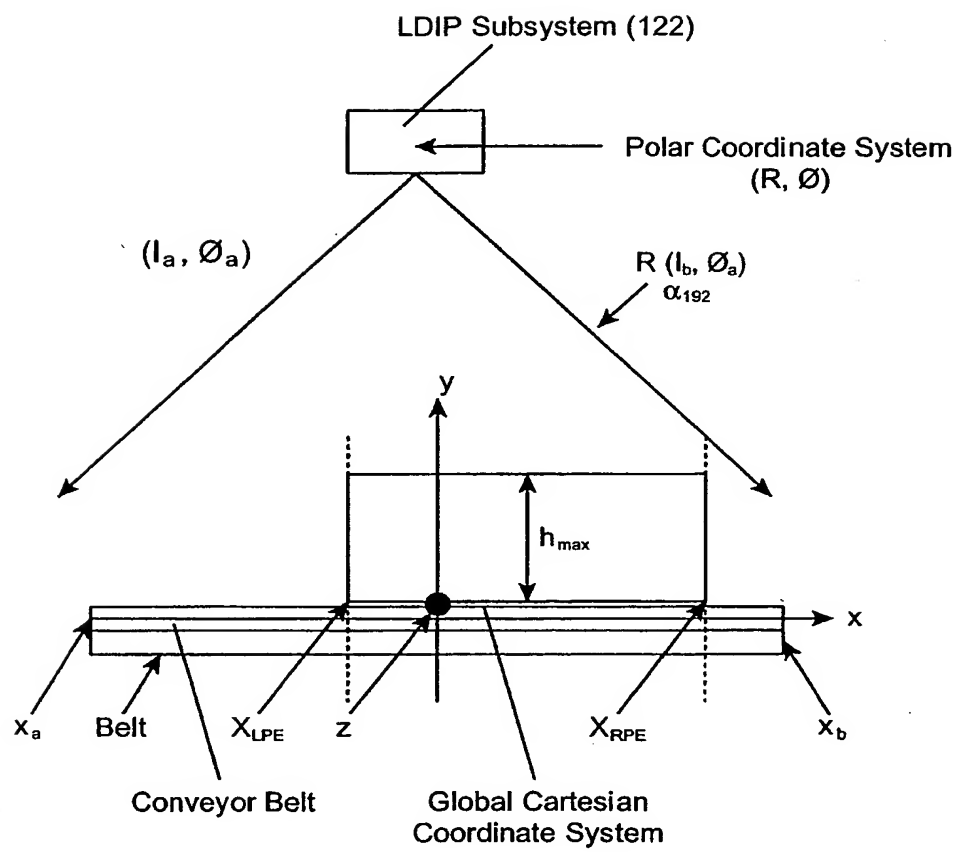


FIG. 17

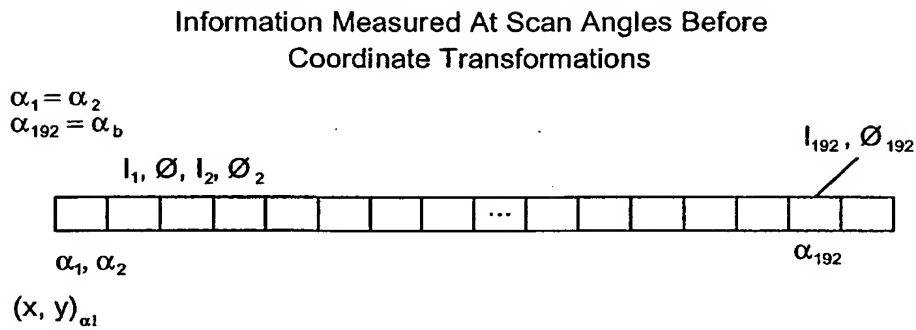


FIG. 17A

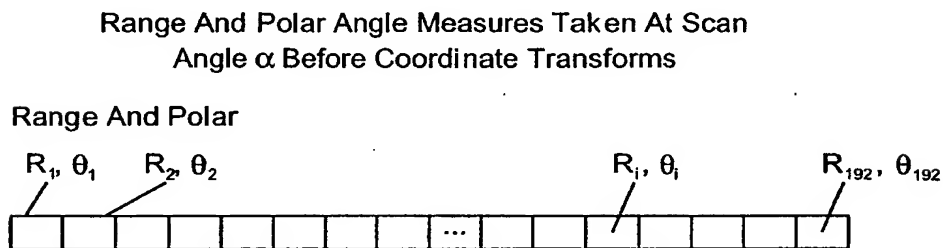


FIG. 17B

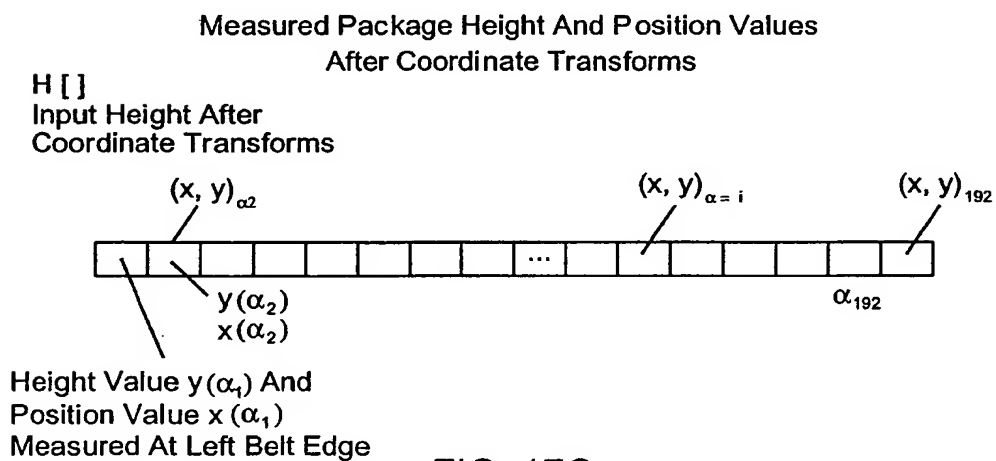


FIG. 17C

**CAMERA CONTROL PROCESS CARRIED OUT WITHIN THE CAMERA
CONTROL SUBSYSTEM OF EACH OBJECT IDENTIFICATION AND
ATTRIBUTE ACQUISITION SYSTEM OF PRESENT INVENTION**

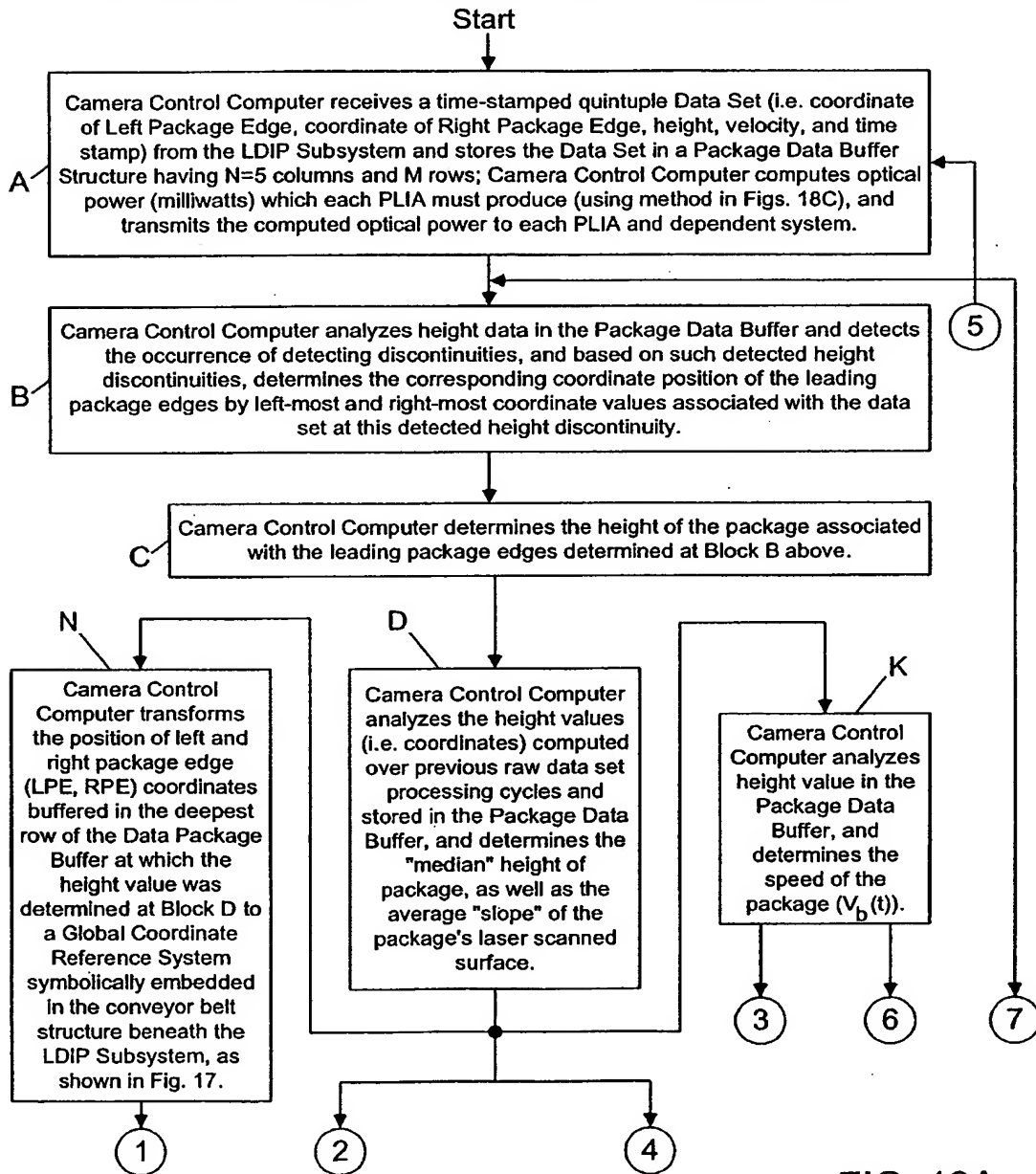


FIG. 18A

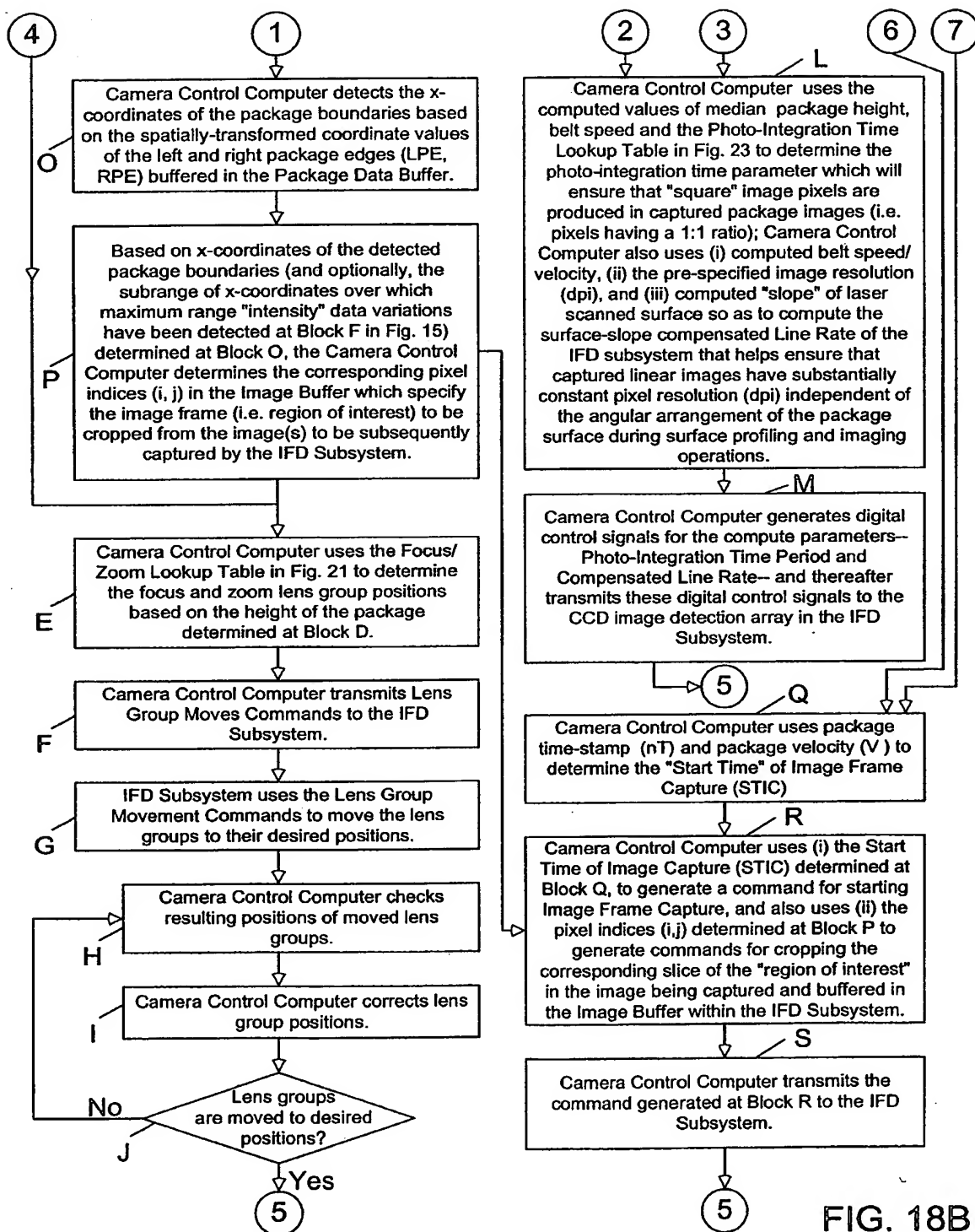


FIG. 18B

METHOD OF COMPUTING OPTICAL OUTPUT POWER FROM LASER
DIODES IN A PLANAR LASER ILLUMINATION ARRAY (PLIA) FOR
CONTROLLING THE CONSTANT WHITE-LEVEL IN IMAGE PIXELS
CAPTURED BY A PLIIM-BASED LINEAR IMAGER

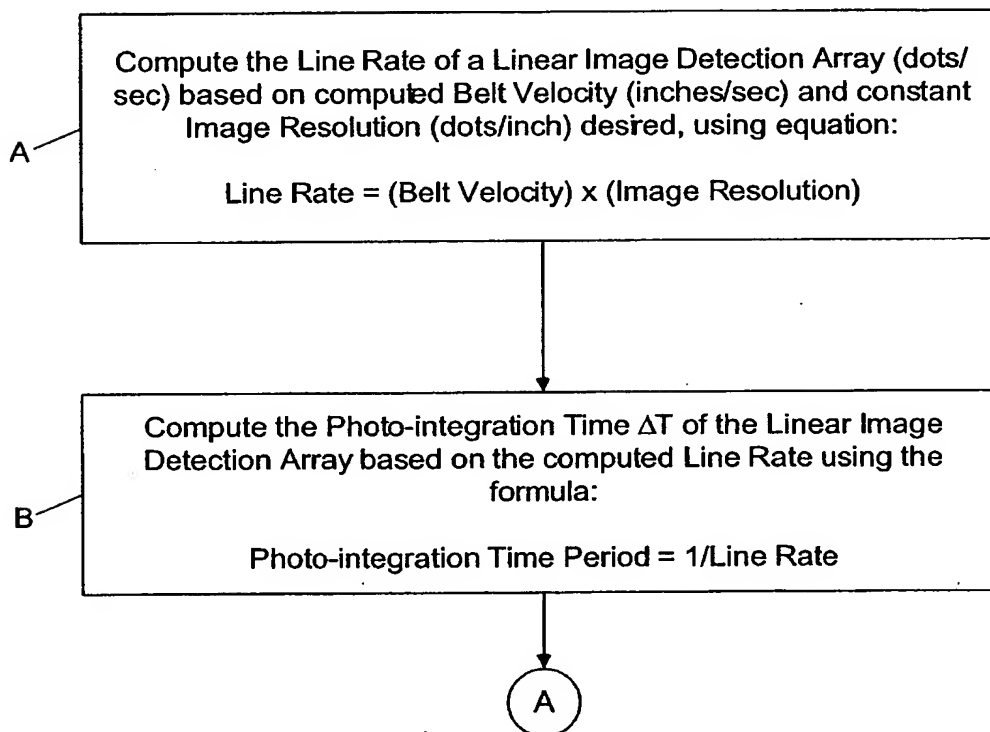


FIG. 18C1

A



Compute the Optical Power (milliwatts) of each PLIA based on the computed Photo-integration Time Period (ΔT) using the following formula:

$$\text{Optical Power of VLD (milliwatts)} = \frac{\text{constant}}{\text{Photo-integration Time Period } \Delta T}$$

FIG. 18C2

Left Package Edge (LPE)	Package Height (h)	Right Package Edge (RPE)	Package Velocity	Time-Stamp (nT)	
					Row 1
					Row 2
					Row 3
					Row 4
					Row 5
					Row M

Package Data Buffer (FIFO)

Columns →

Rows ↓

Camera Pixel Data Buffer

Pixel Indices (i, j)

FIG. 20

Zoom And Focus Lens Group Position
Look-Up Table

Distance From Camera H (mm)	Zoom Group Distance (mm) Y (Zoom)	Focus Group Distance (mm) Y (Focus)
1000	21.57489228	2.47E-05
1100	19.38089696	10.99009783
1200	17.10673434	20.65783177
1300	14.77137314	29.10917002
1400	12.39153565	36.47312595
1500	9.979114358	42.87845436
1600	7.540539114	48.44003358
1700	5.078794775	53.25495831
1800	2.595989386	57.40834303
1900	0.099972739	60.98883615
(Use Interpolation Techniques For Working Distances Between Listed Points In Table)		

FIG. 21

* Note: The focal distance and zoom (eff. focal length) of camera lens are coupled (inter-dependant) in this commercial embodiment.

Camera Has A Fixed Aperture F56

Focus And Zoom Lens Movement vs. Working Distances

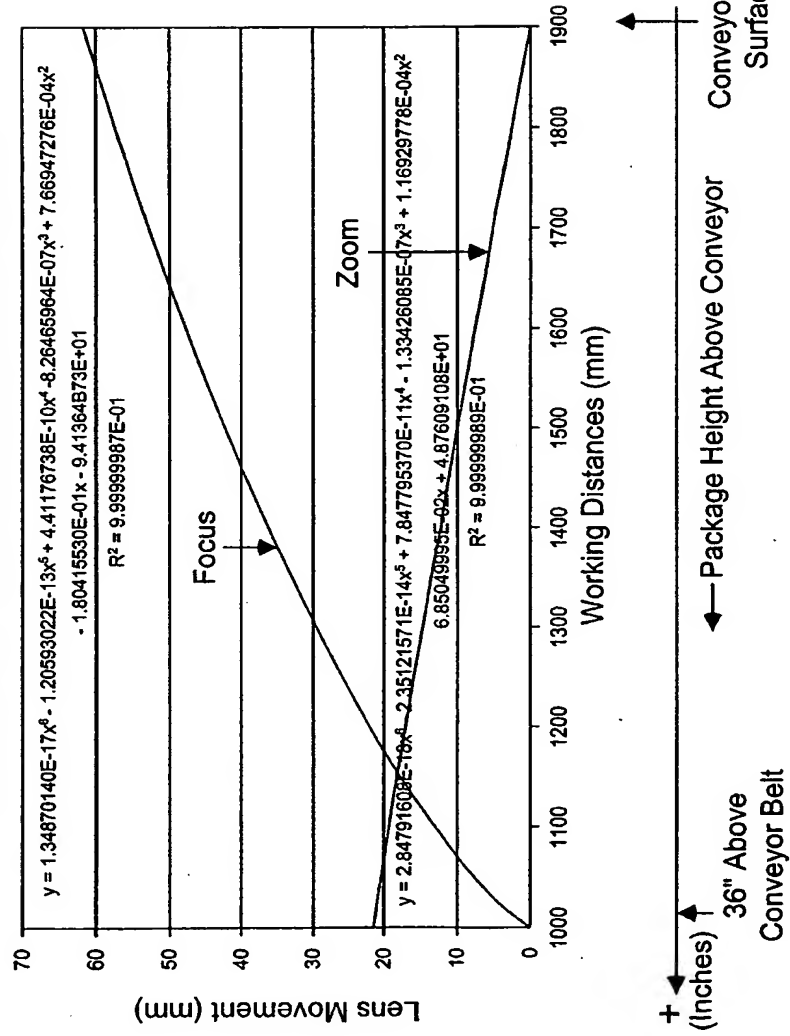
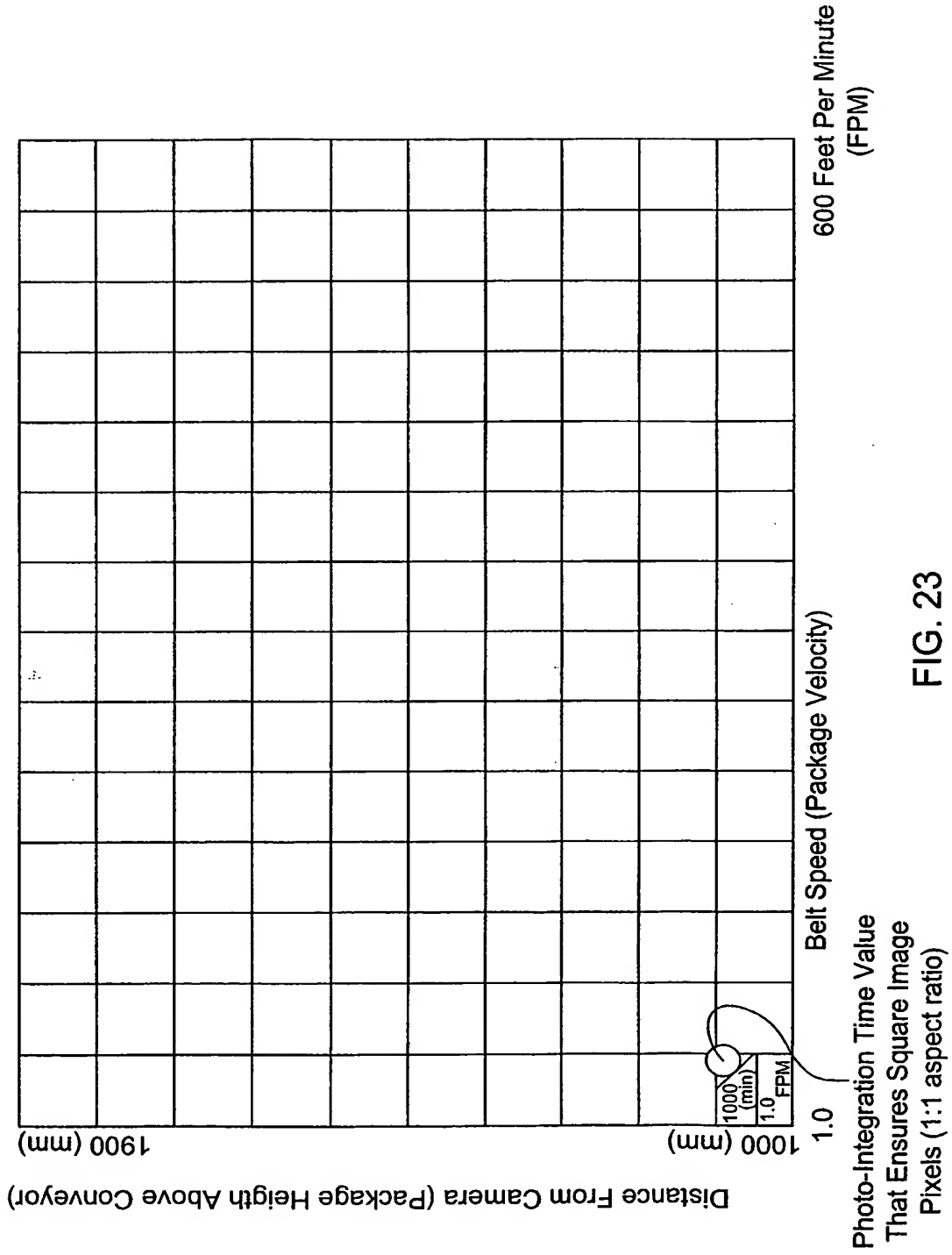


FIG. 22

Photo-Integration Time Look-Up Table



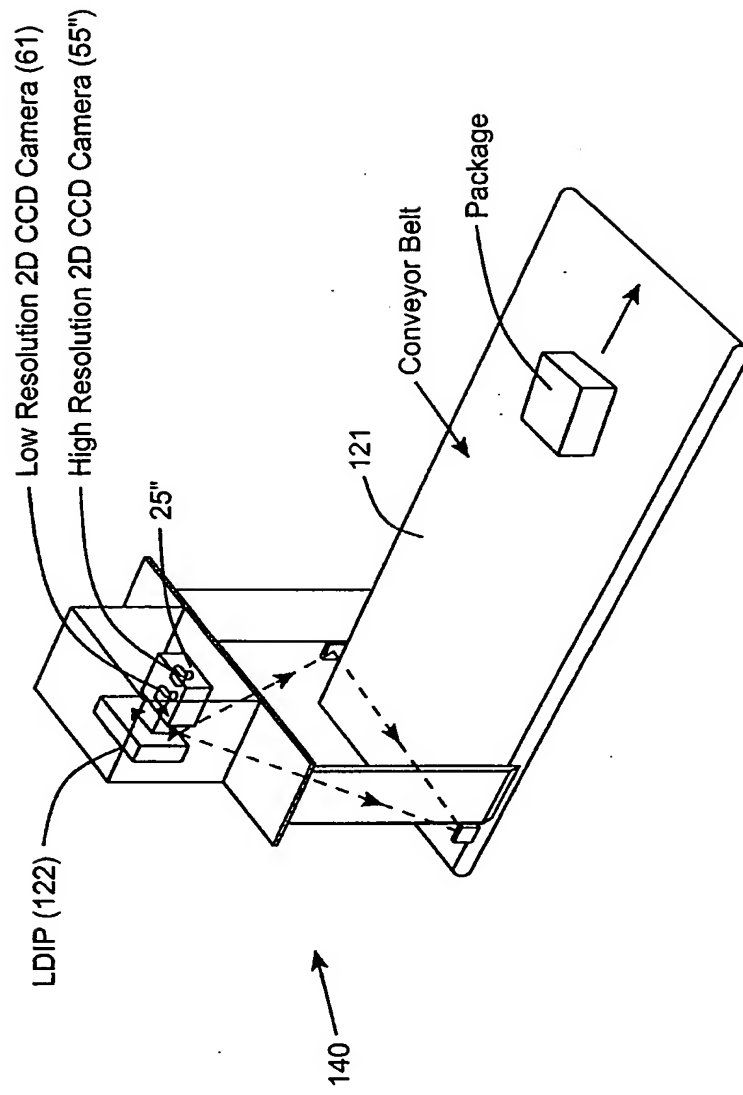


FIG. 24

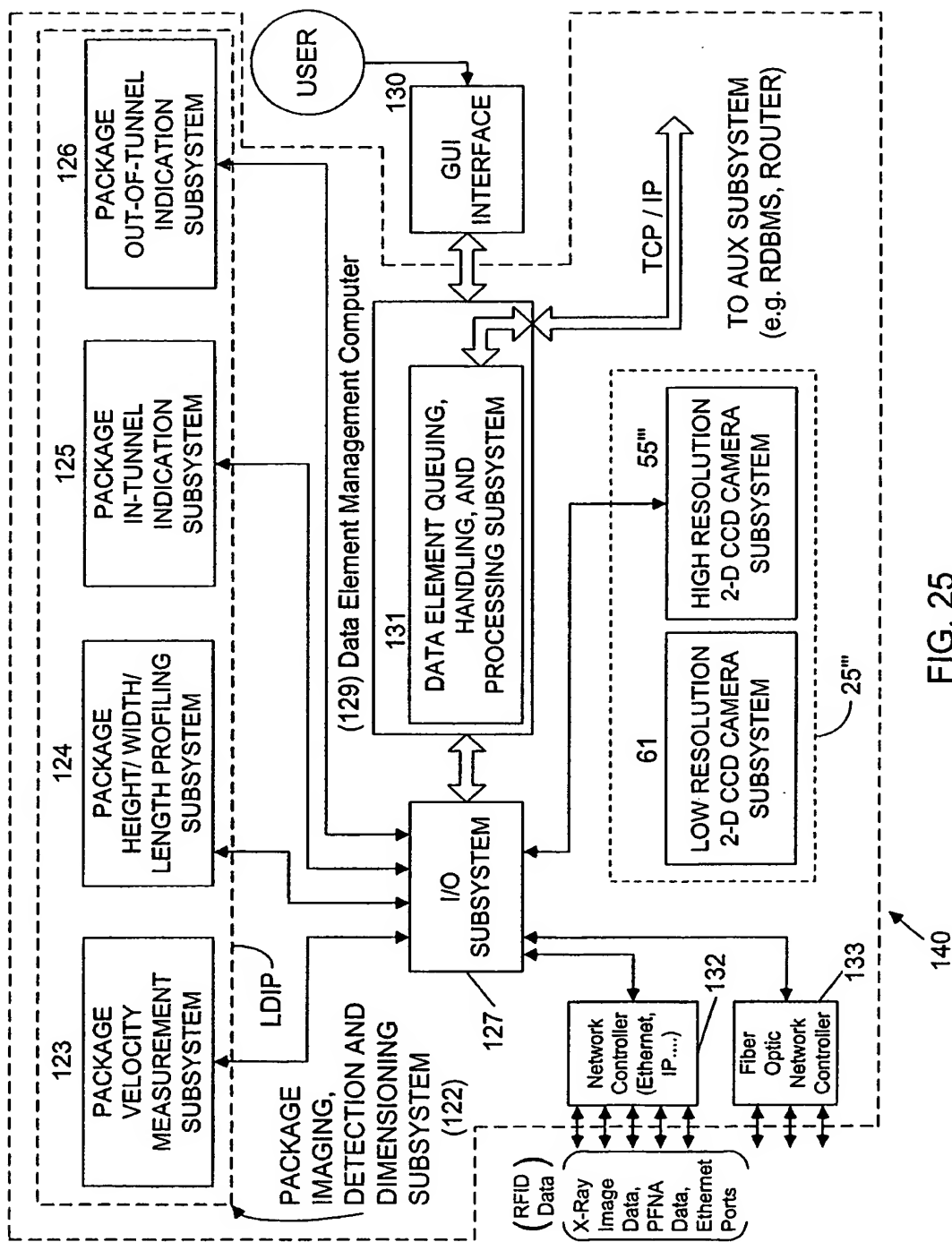


FIG. 25

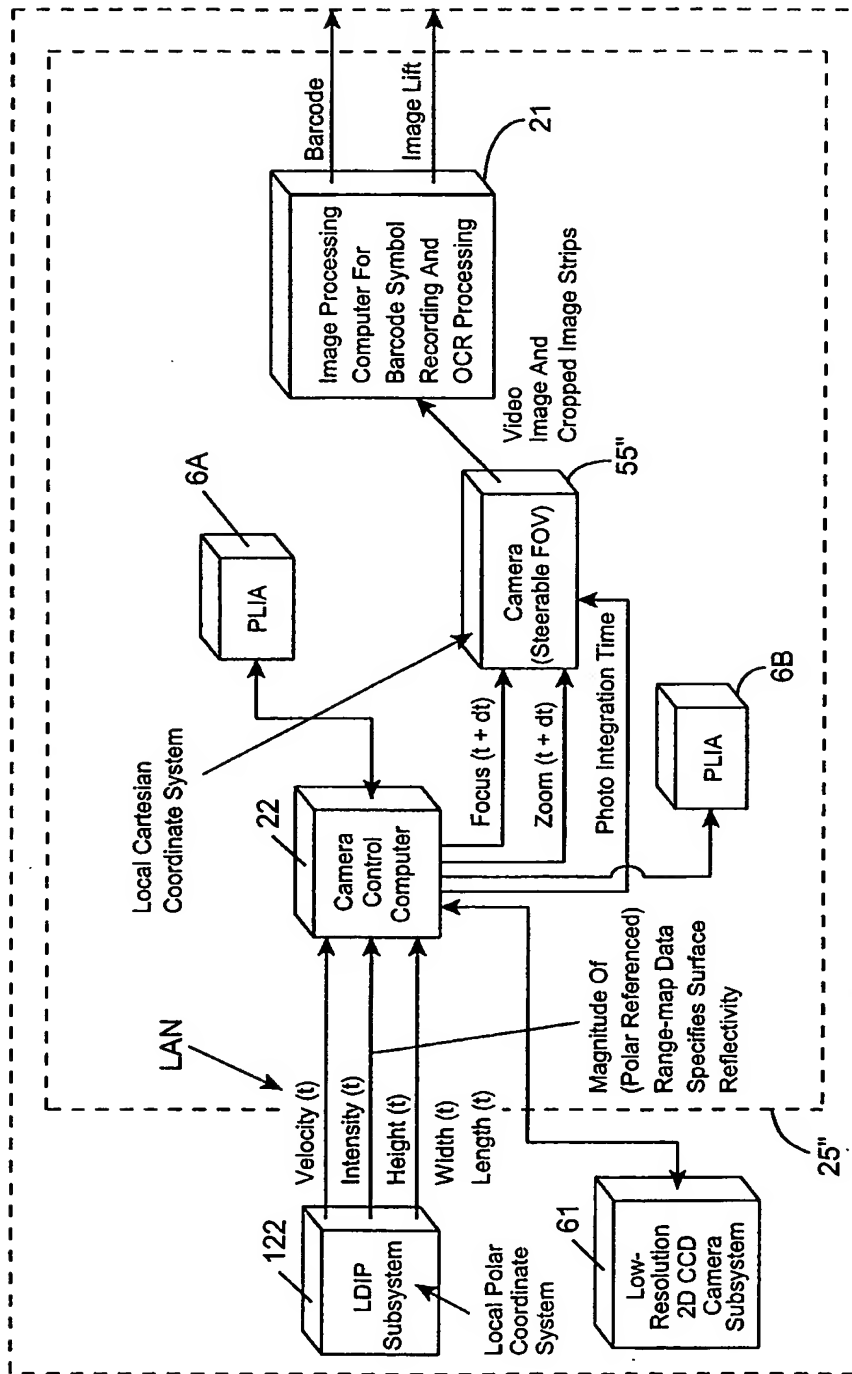


FIG. 26

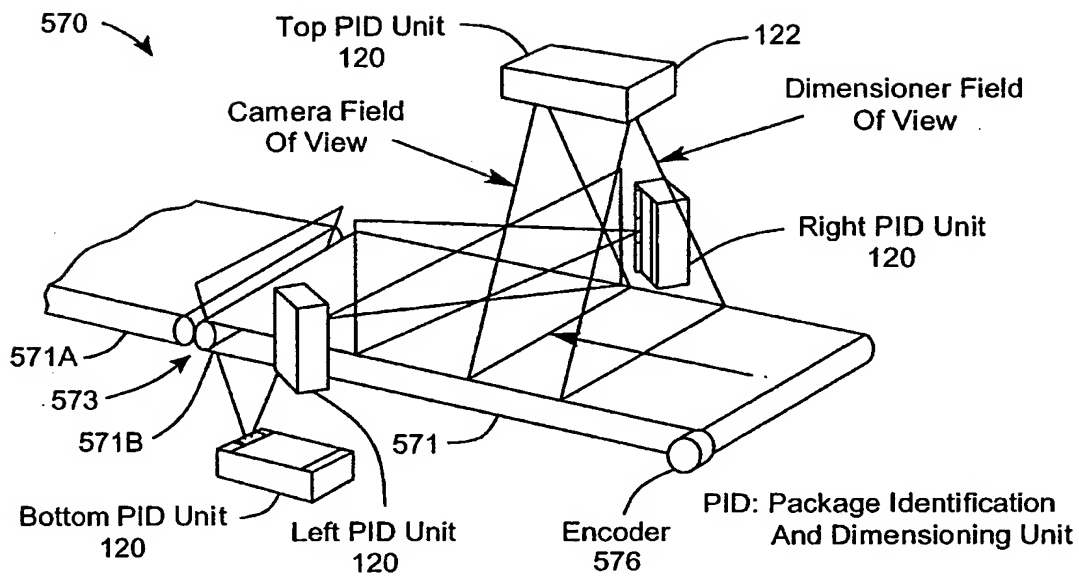


FIG. 27

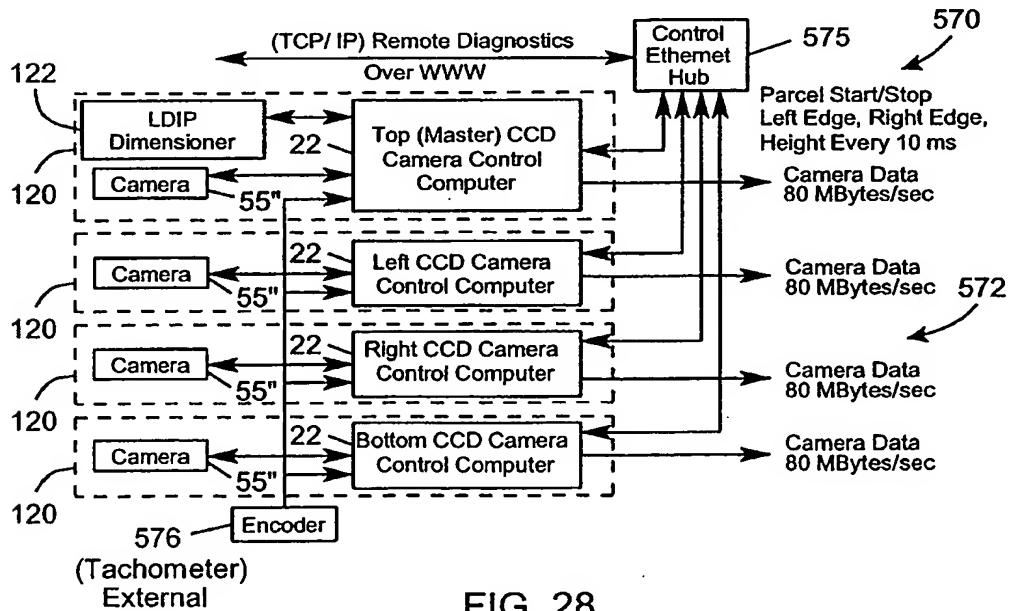


FIG. 28

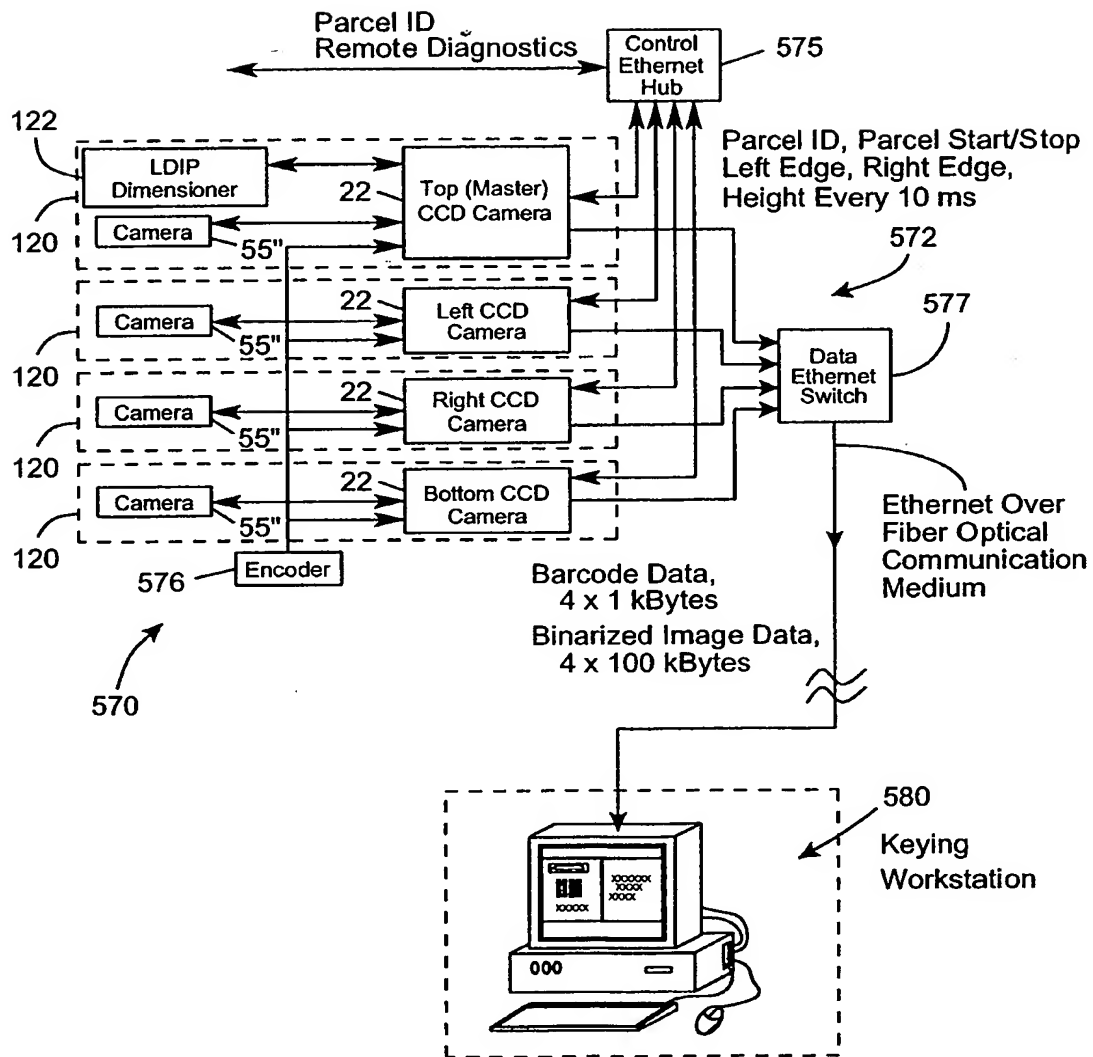


FIG. 29

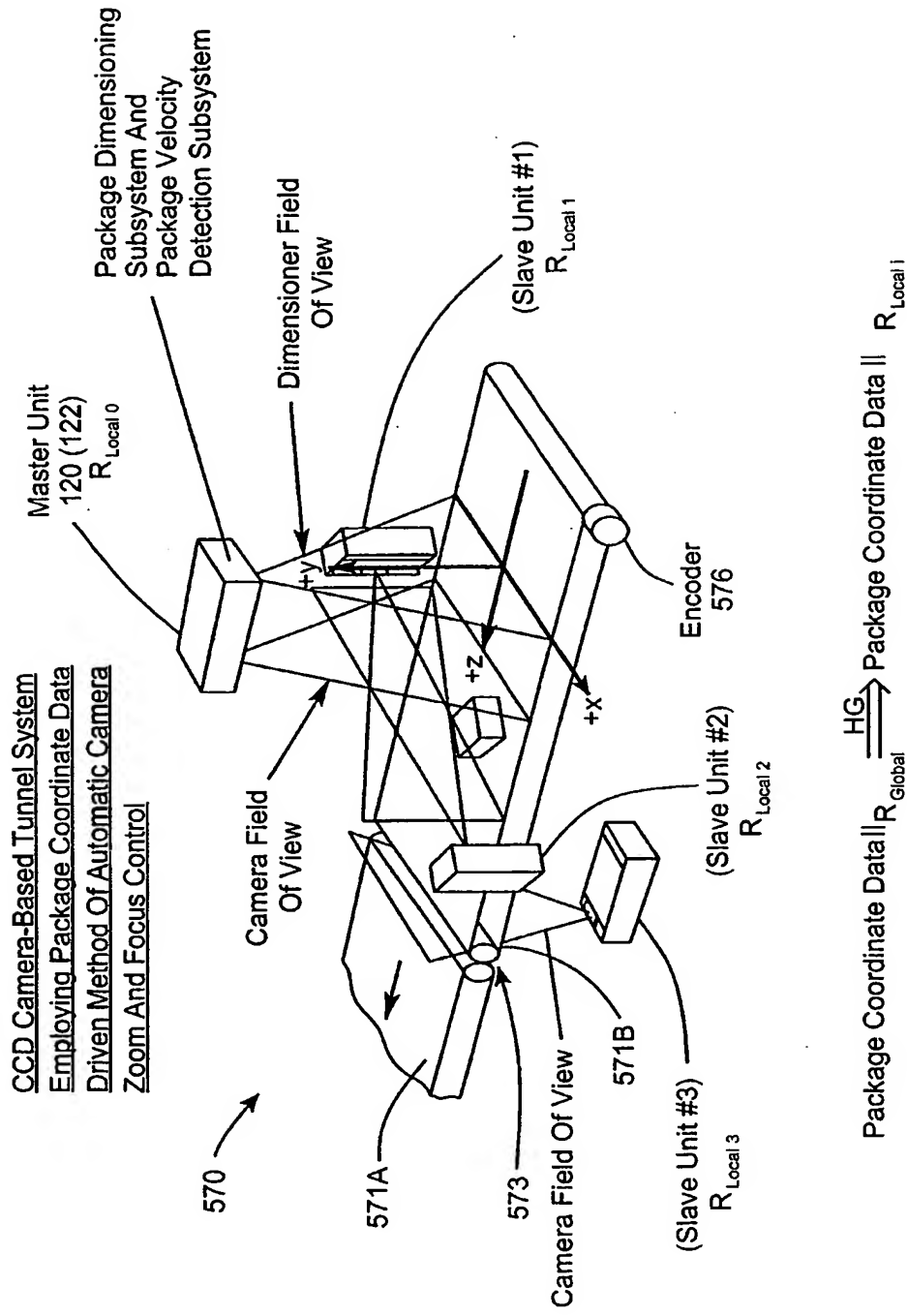


FIG. 31

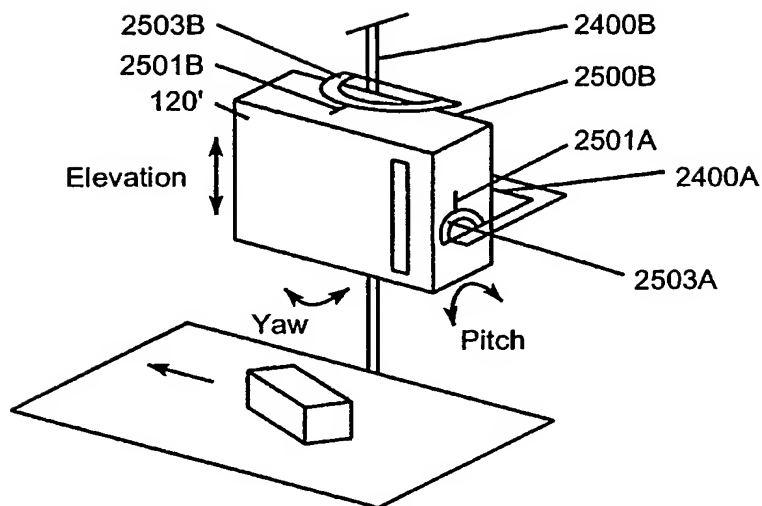


FIG. 31A

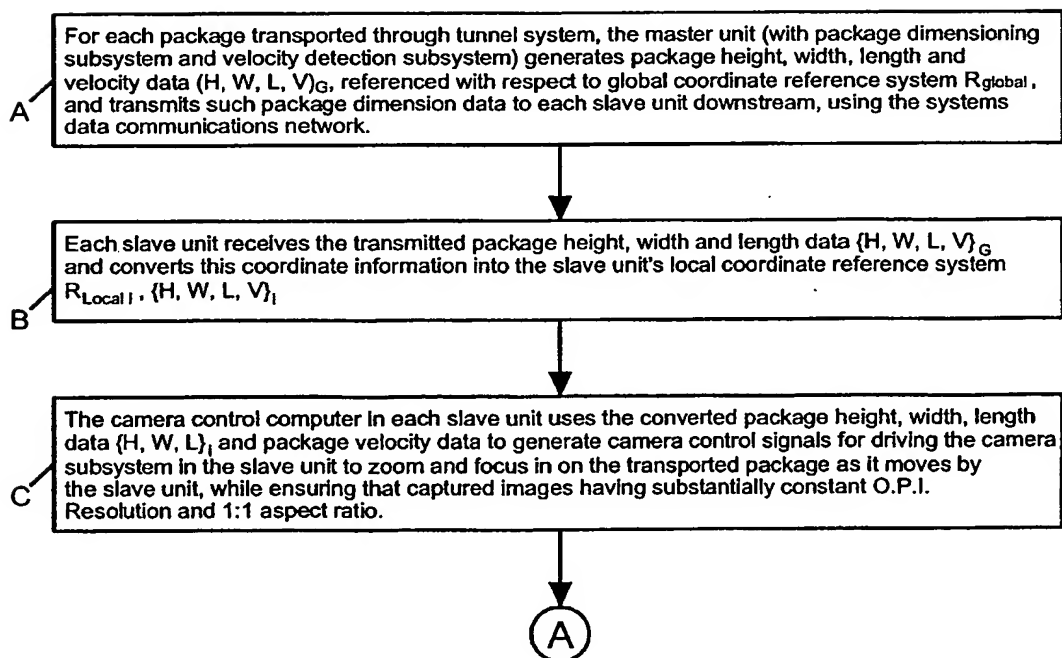


FIG. 32A

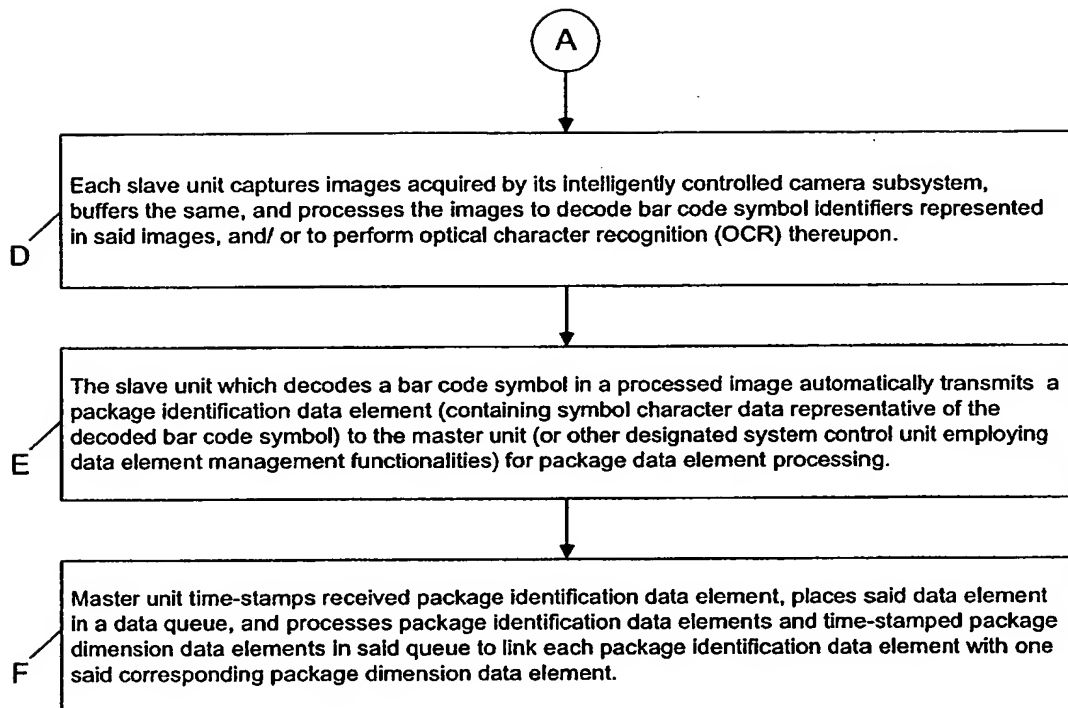


FIG. 32B

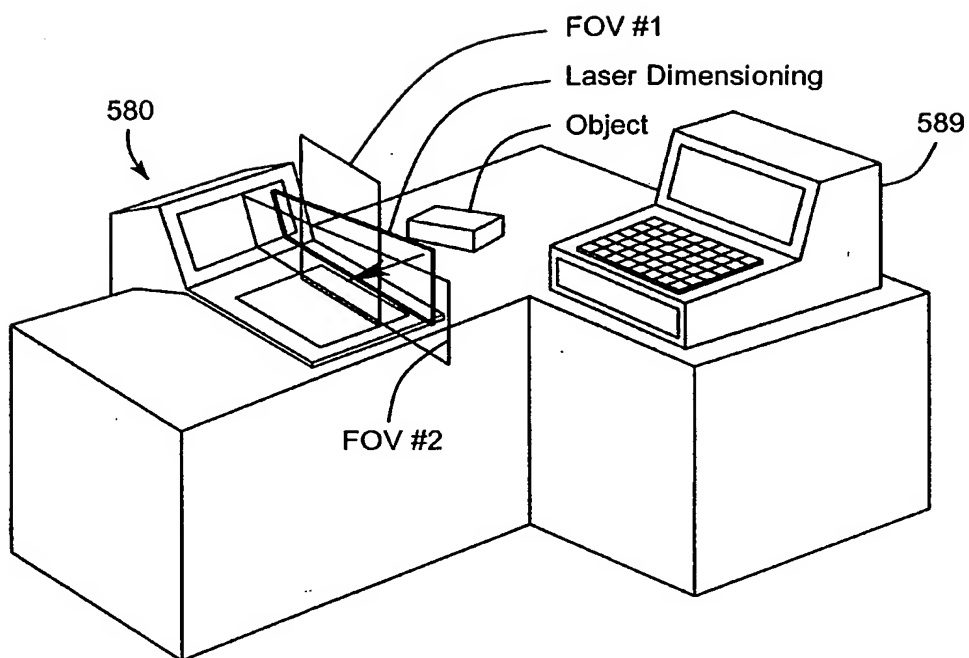


FIG. 33A

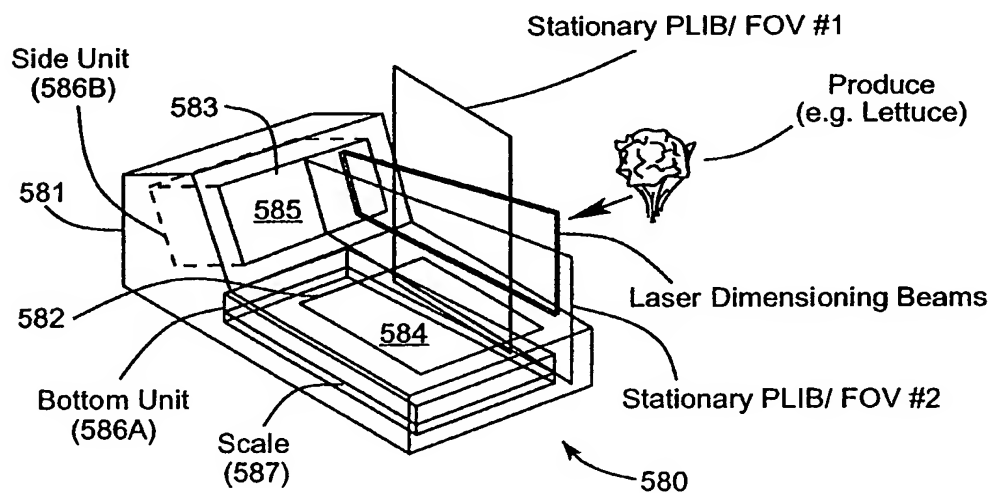


FIG. 33B

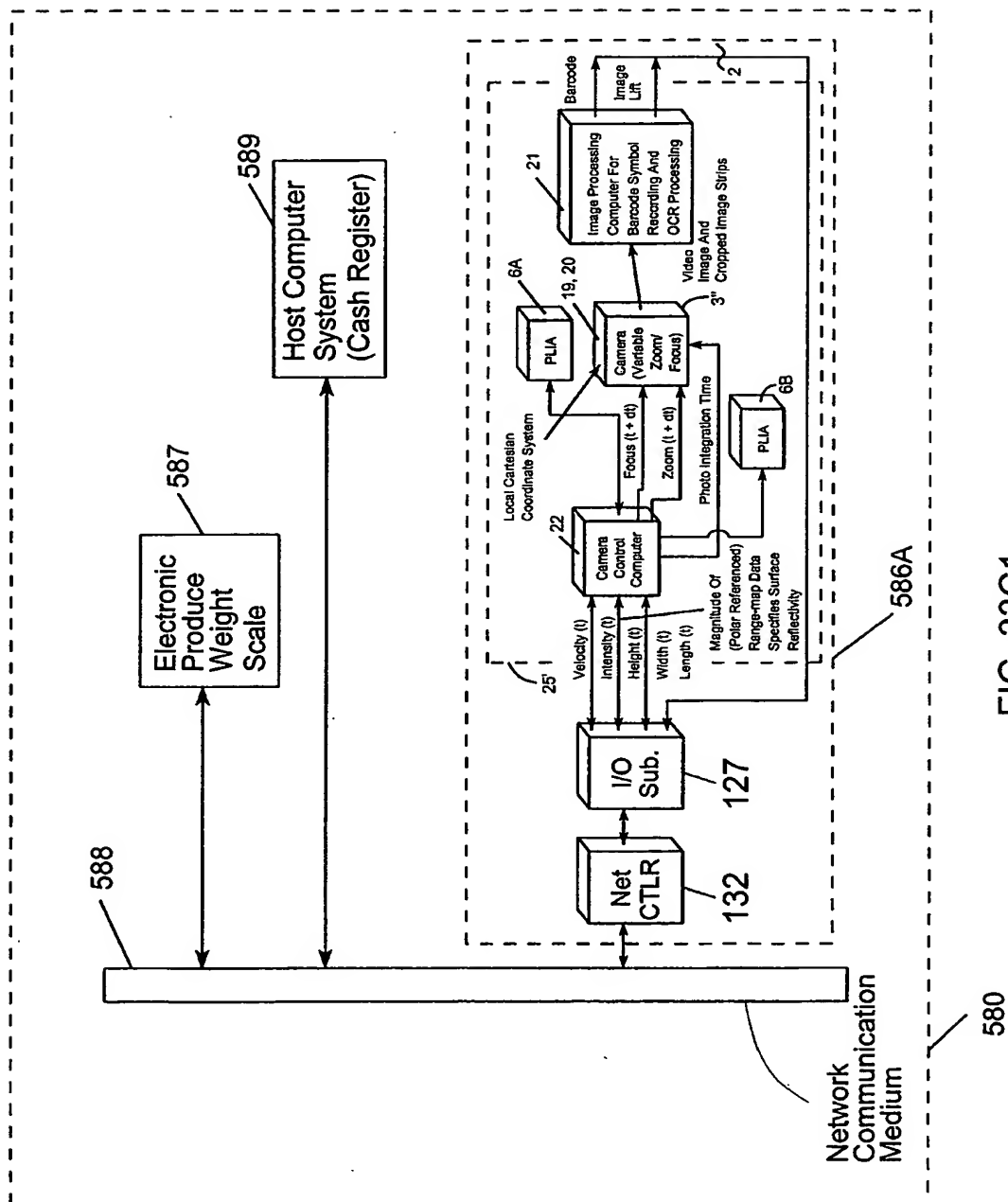


FIG. 33C1

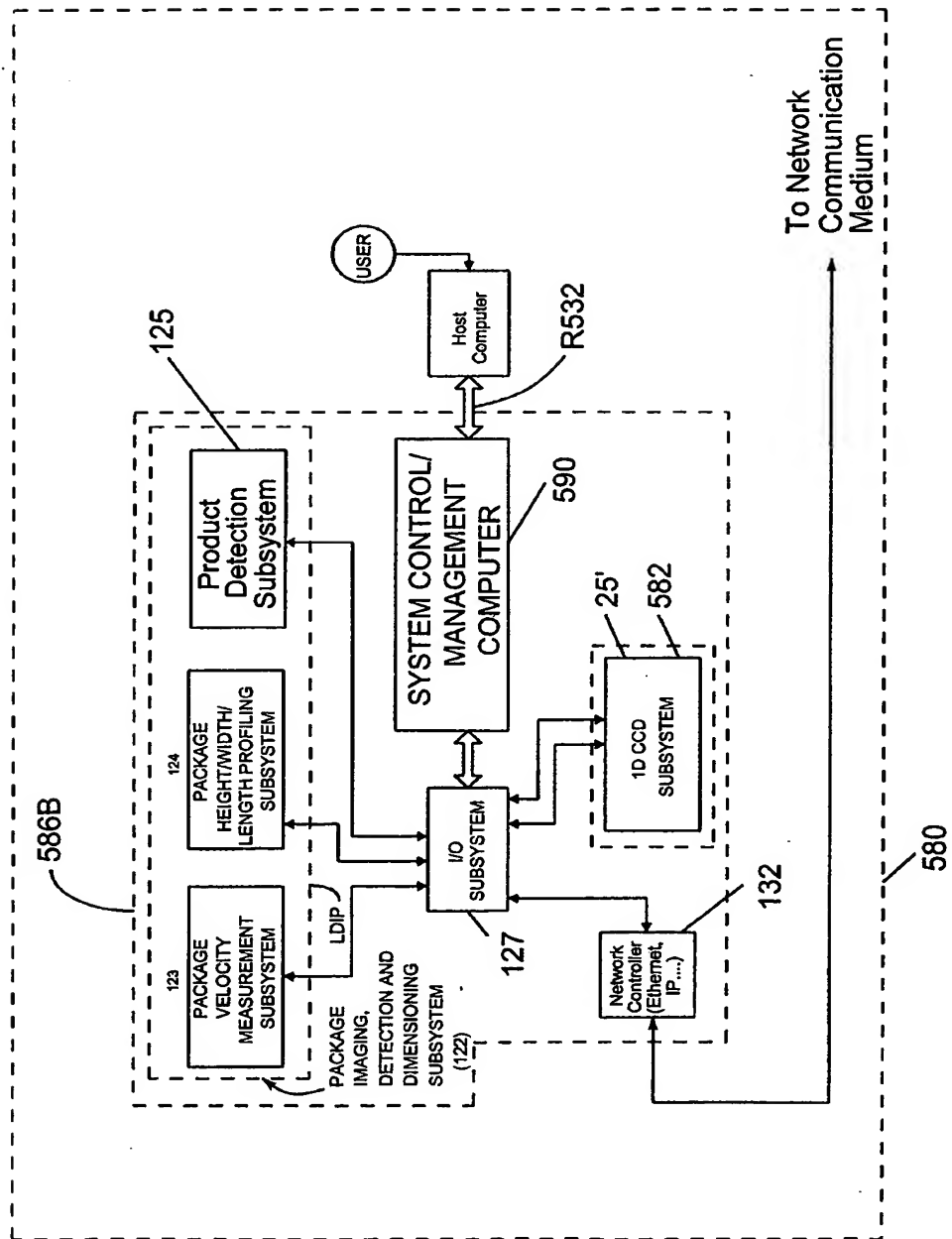


FIG. 33C2

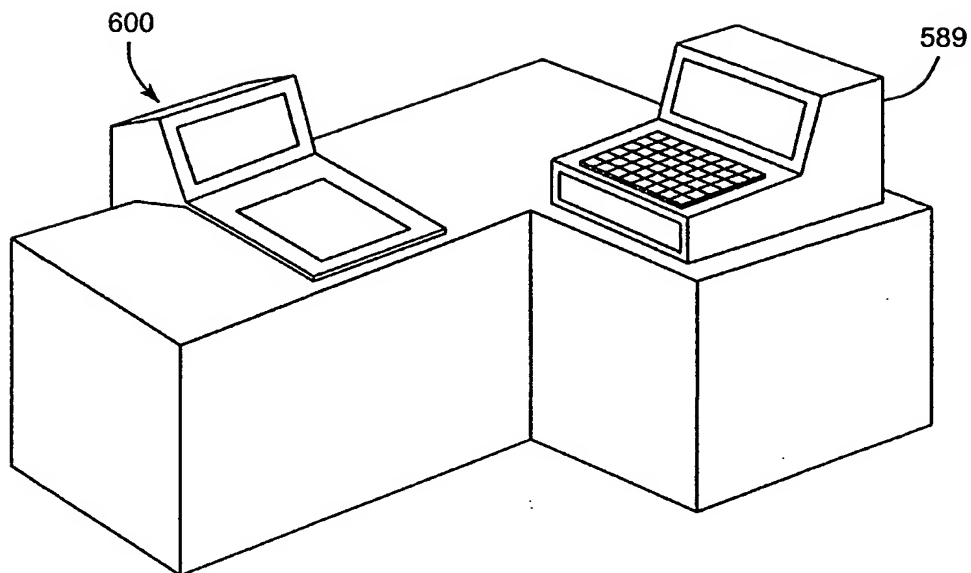


FIG. 34A

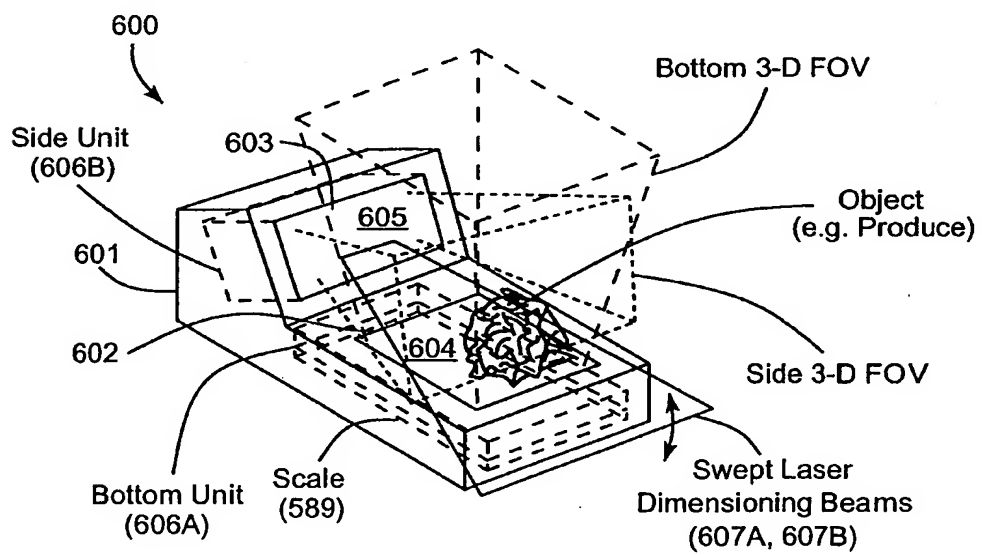
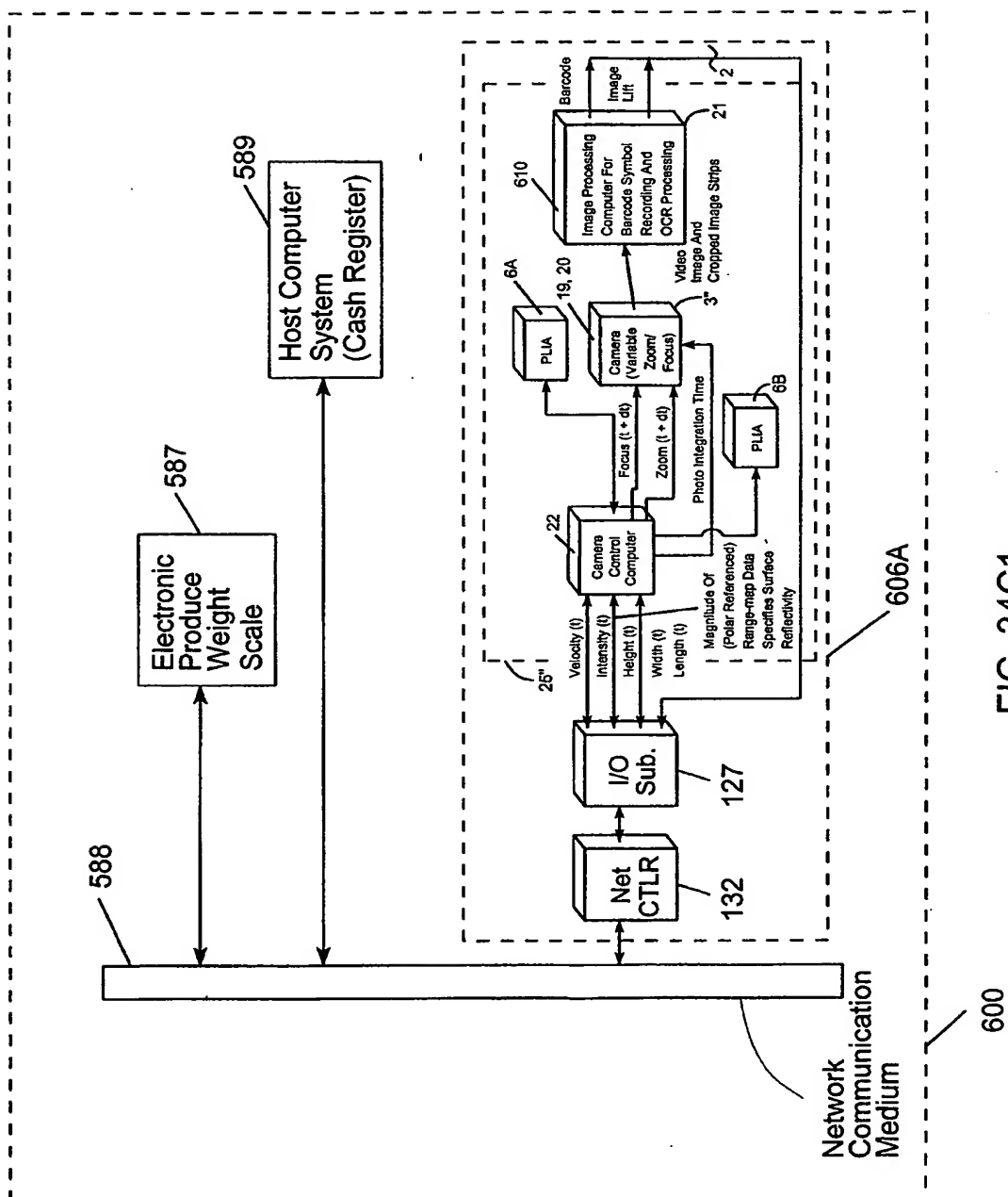


FIG. 34B



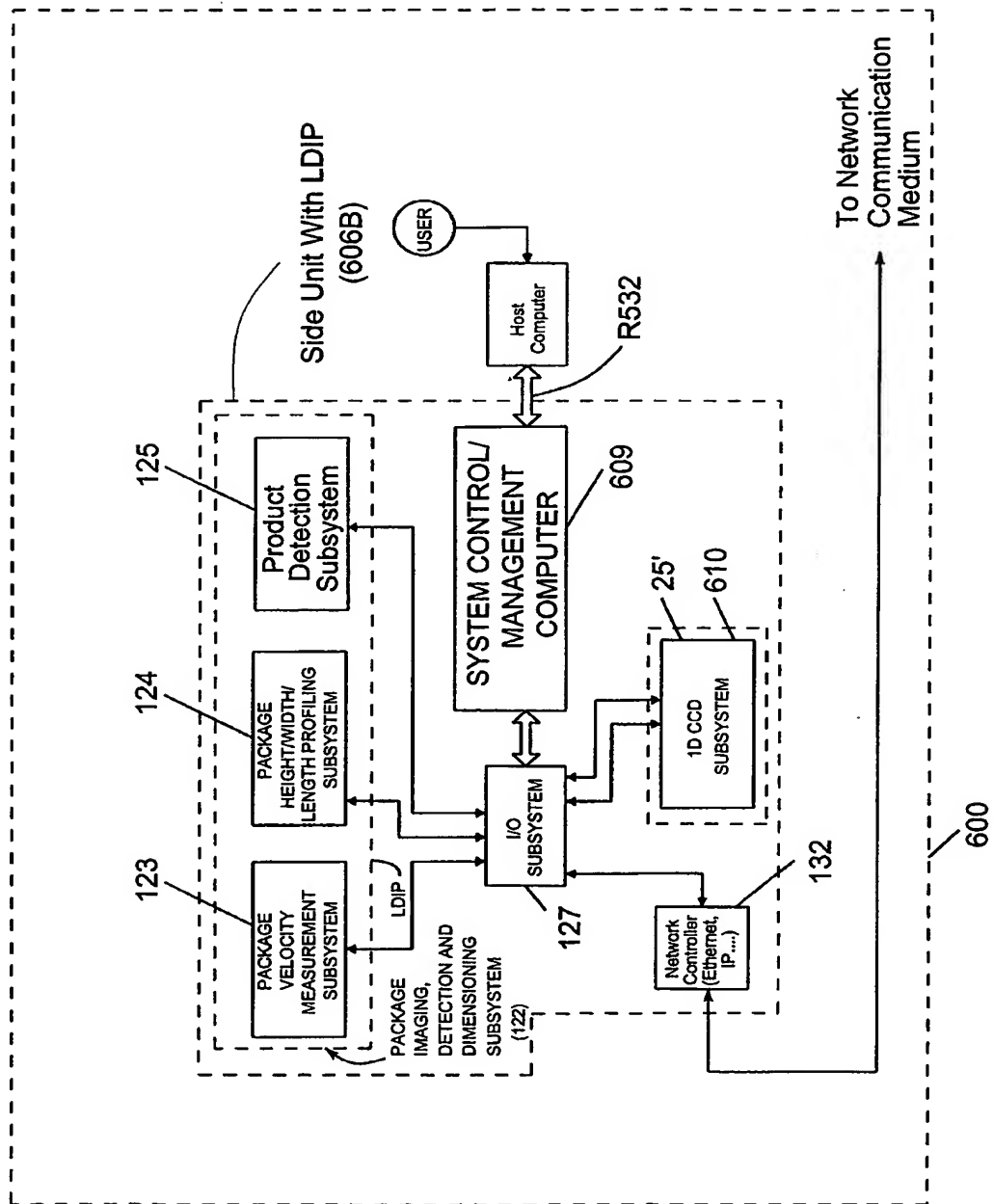


FIG. 34C2

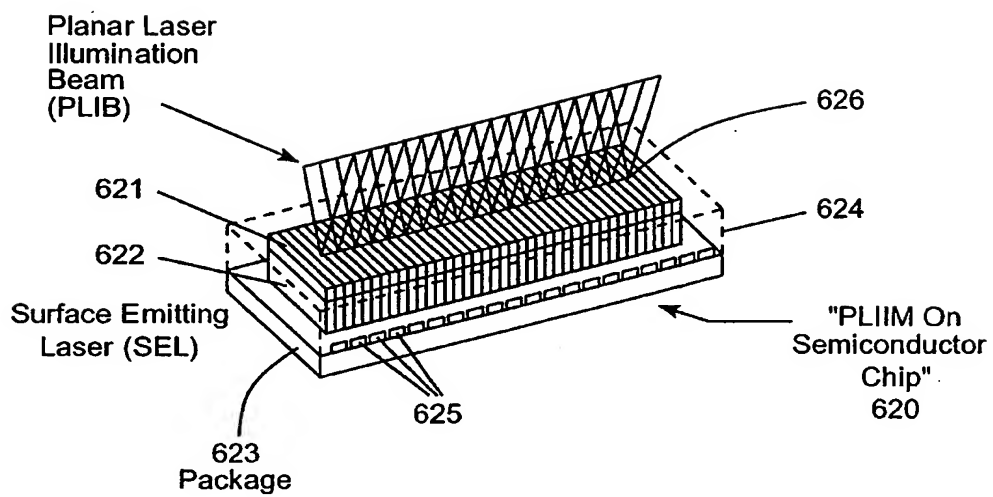


FIG. 35A

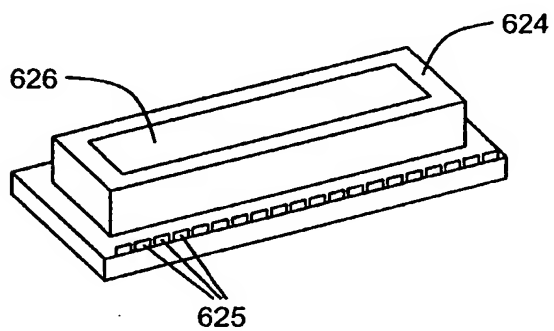


FIG. 35B

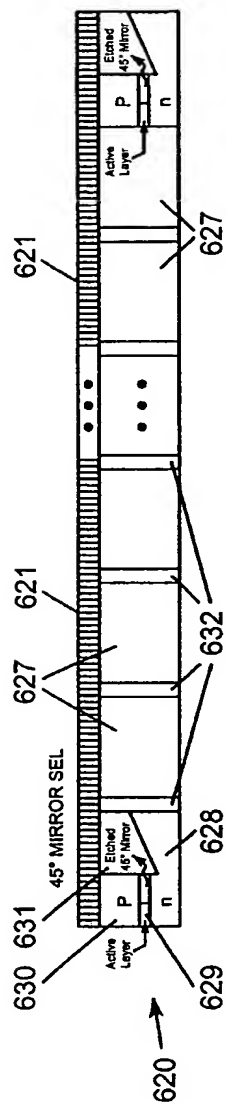


FIG. 36A

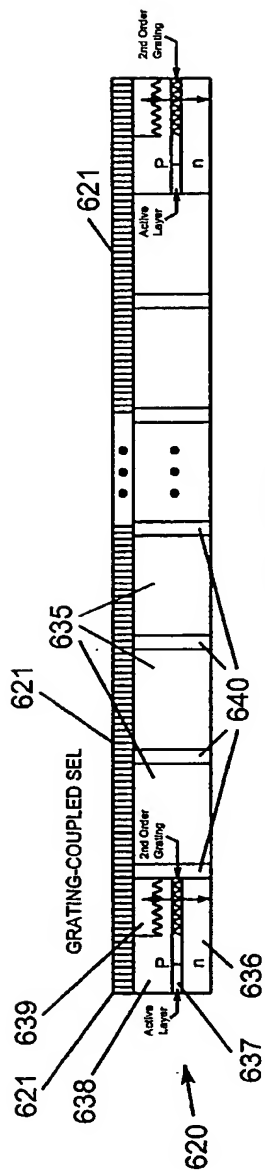


FIG. 36B

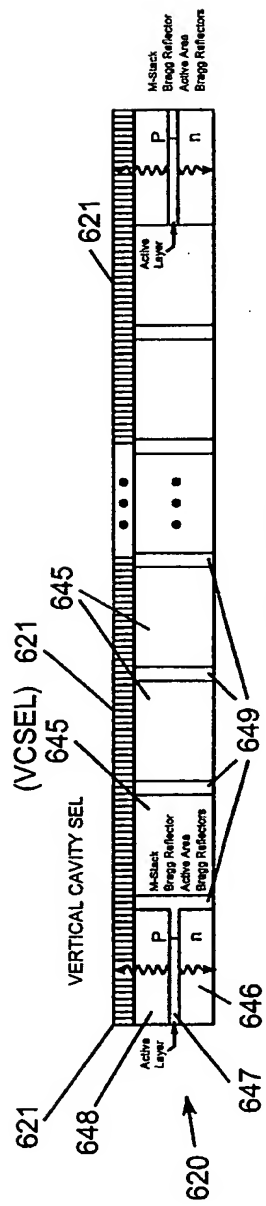


FIG. 36C

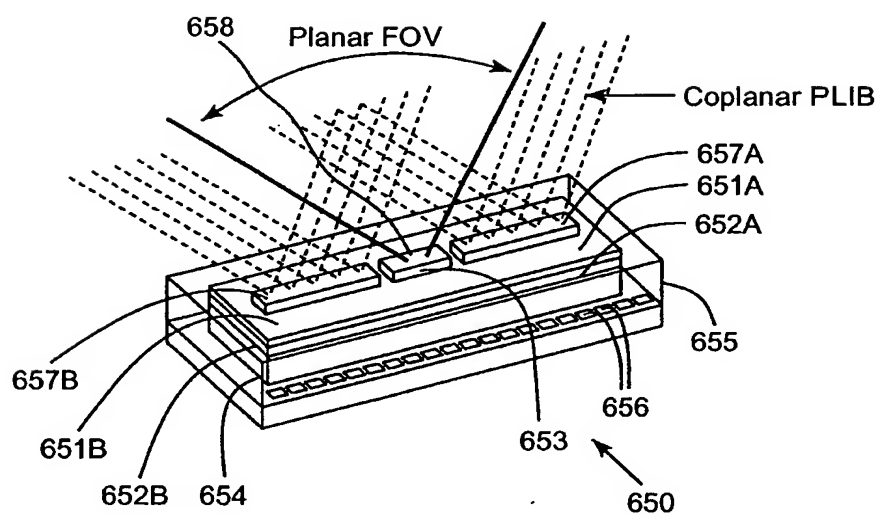


FIG. 37

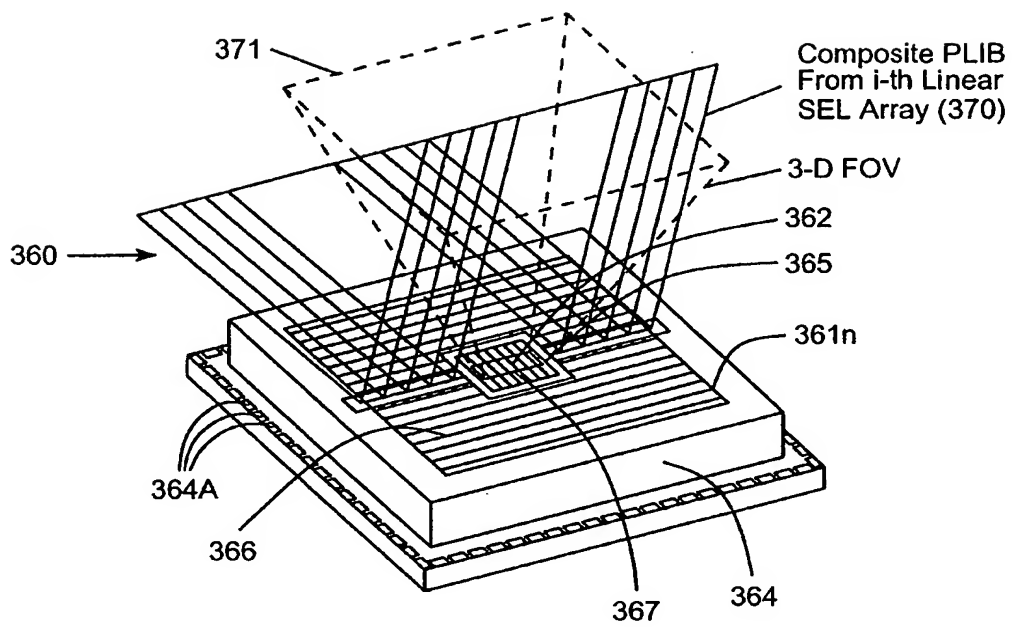


FIG. 38A

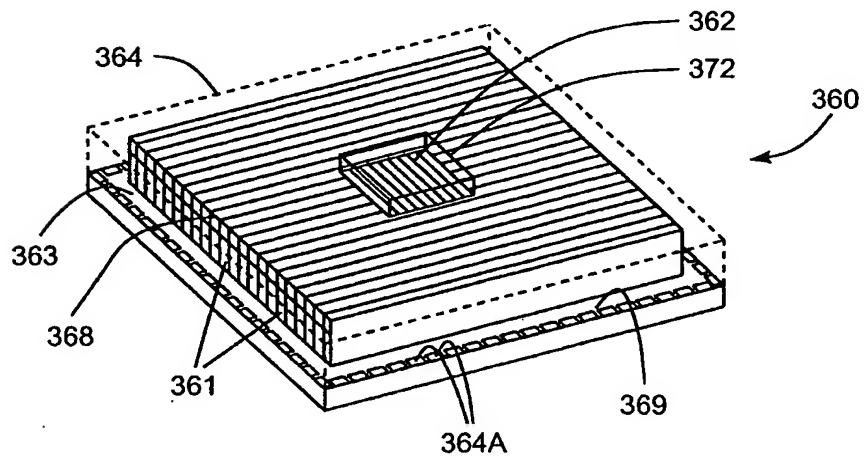


FIG. 38B

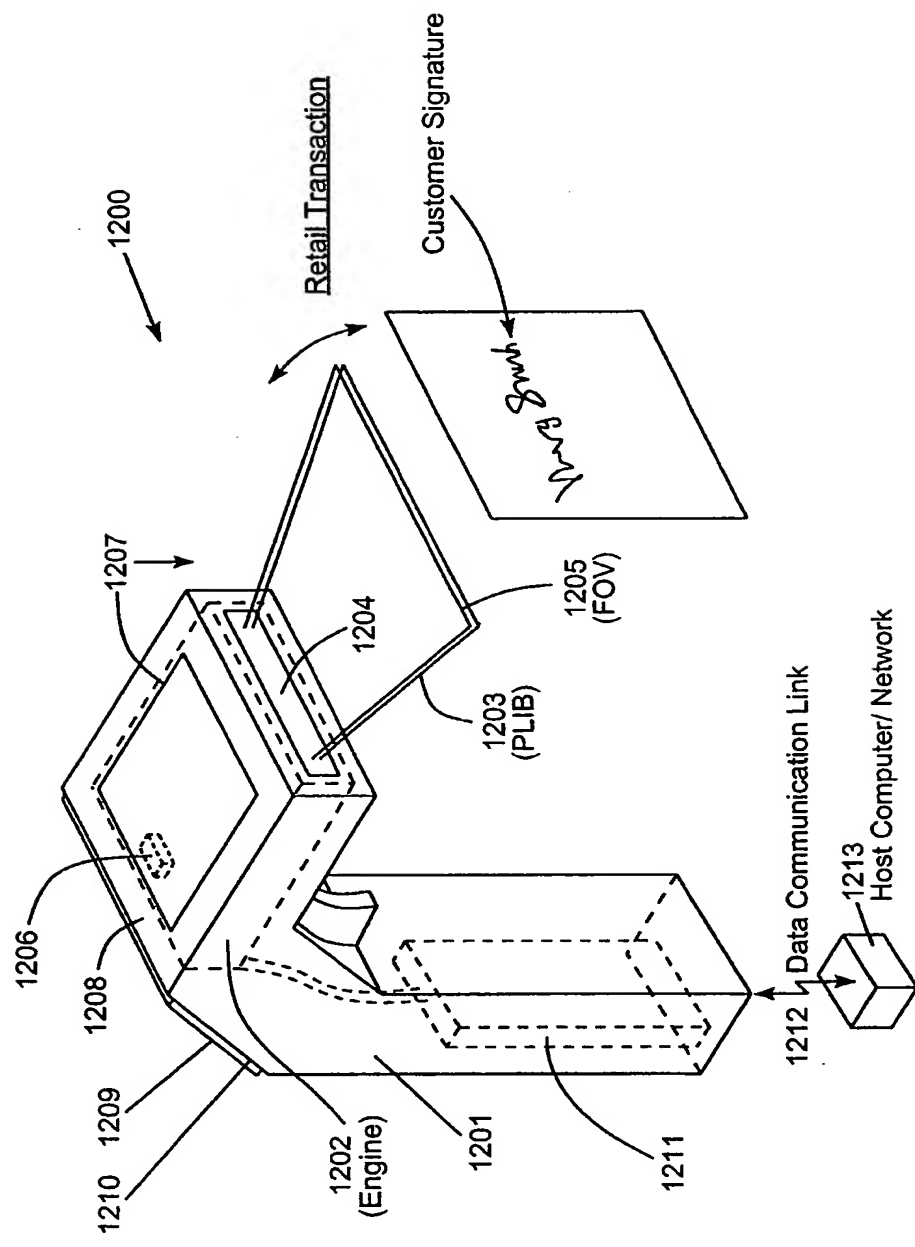


FIG. 39A

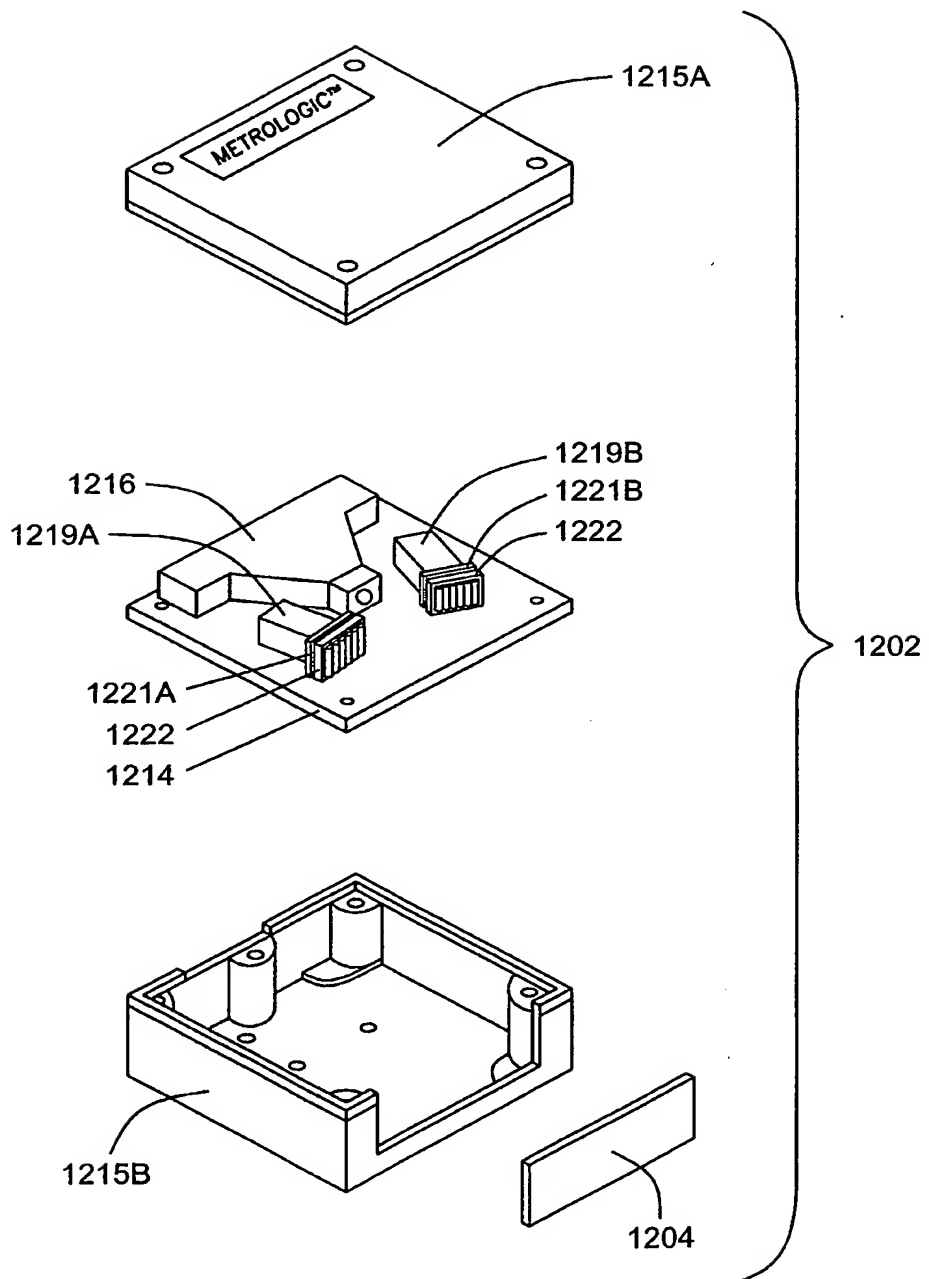


FIG. 39B

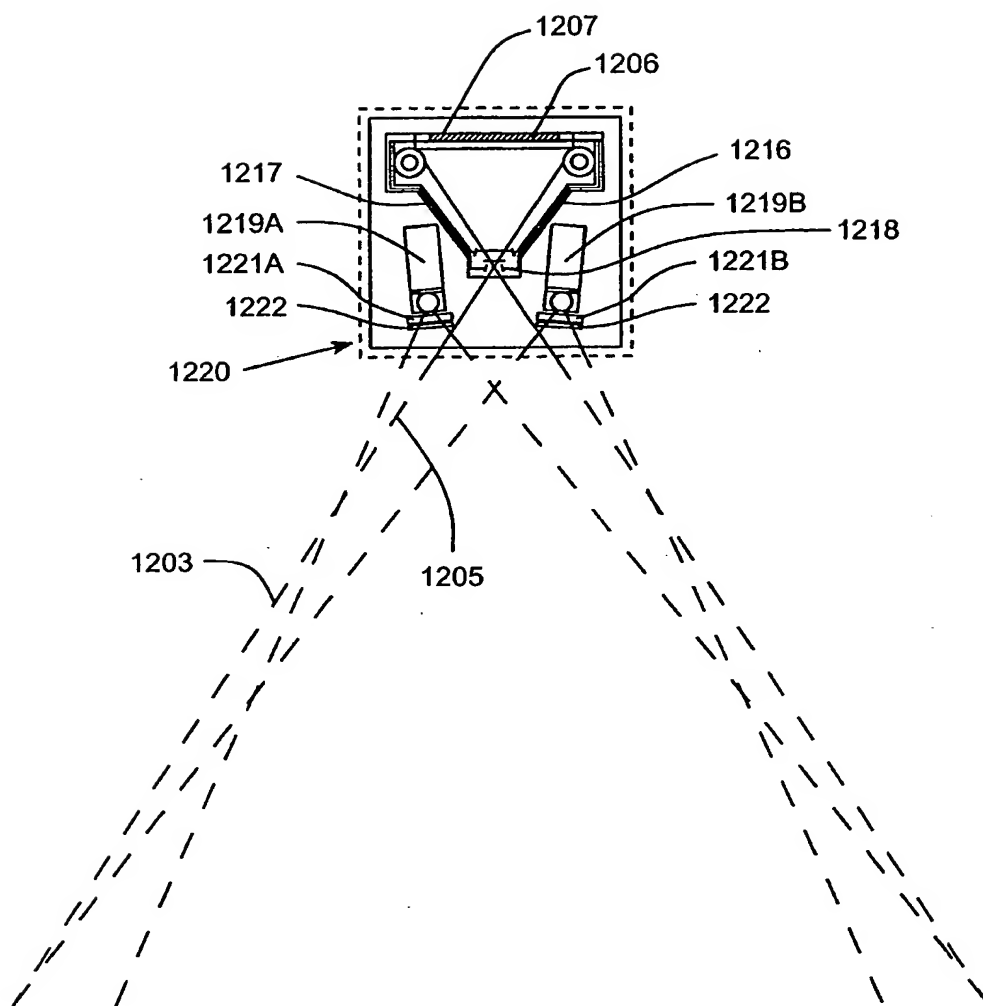


FIG. 39C

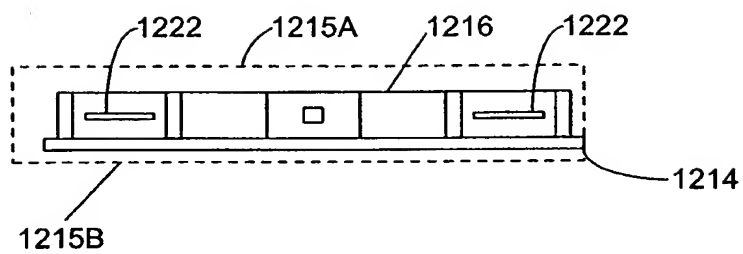


FIG. 39D

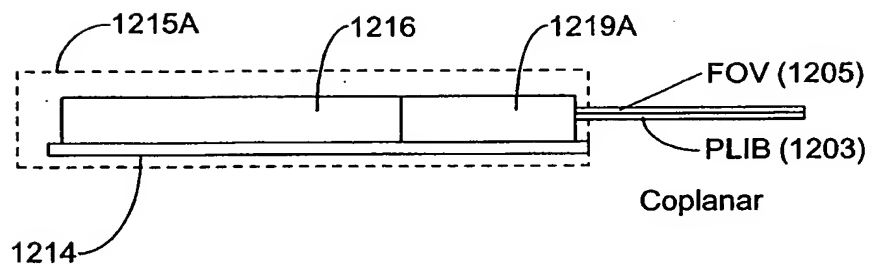


FIG. 39E

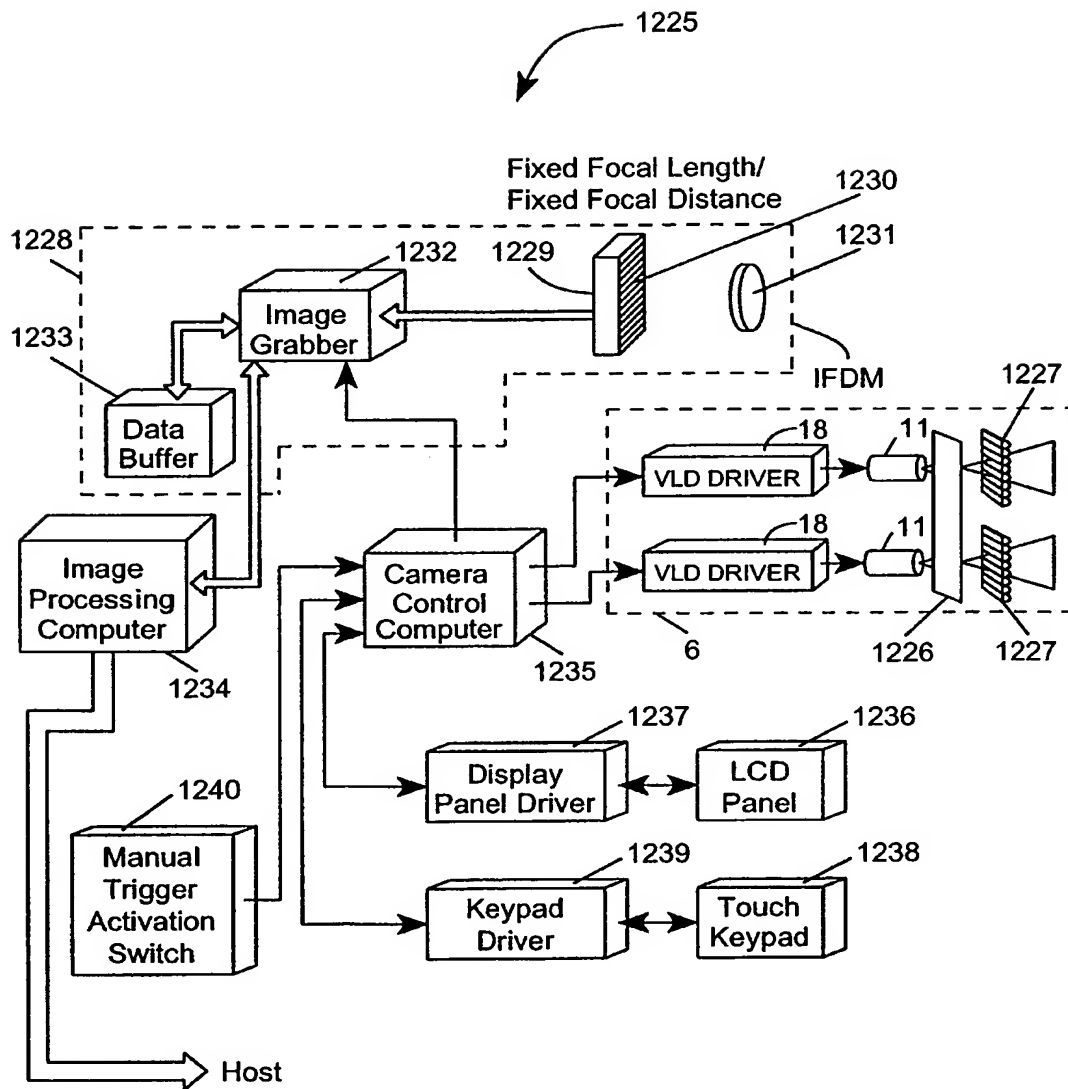
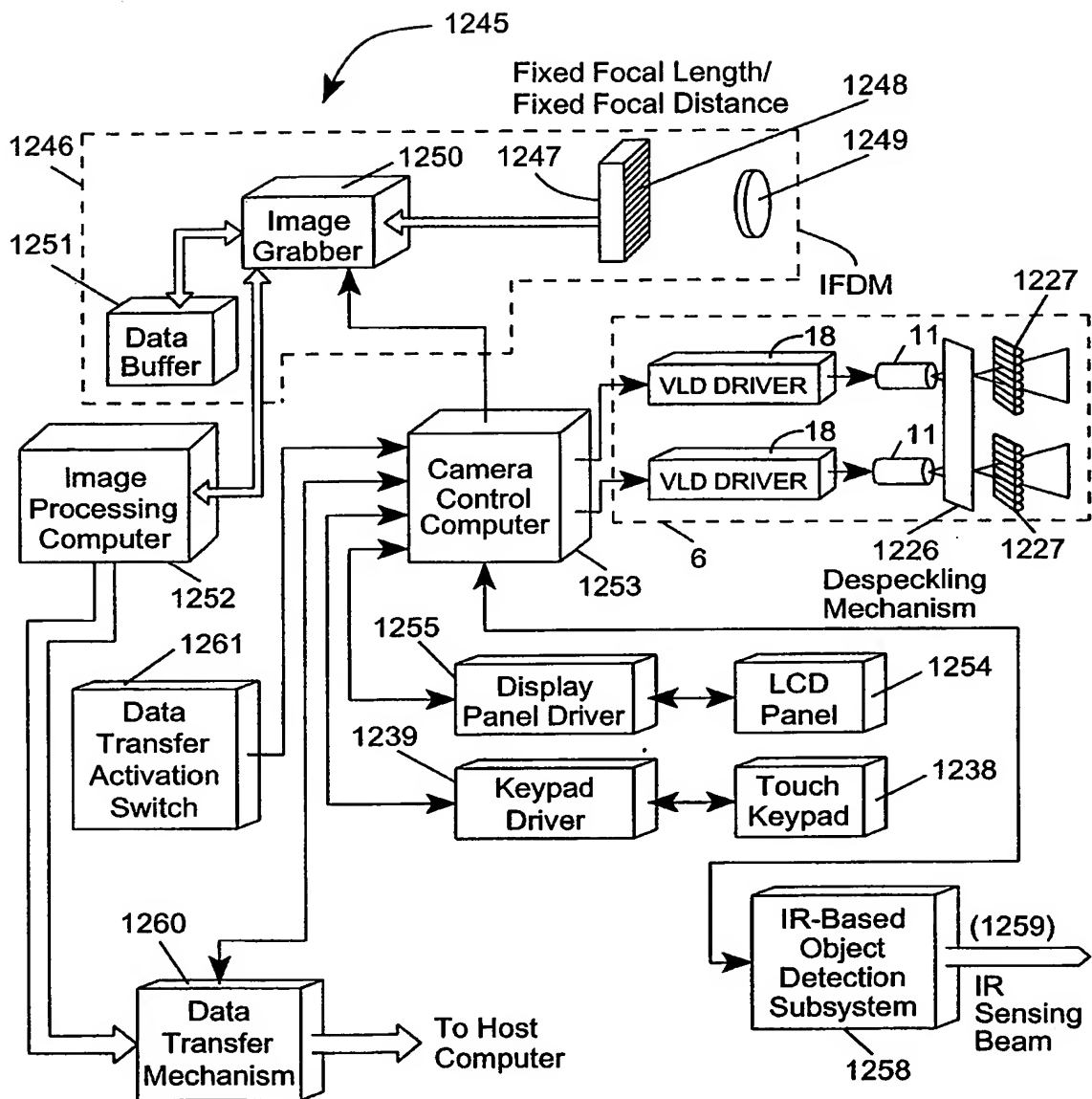
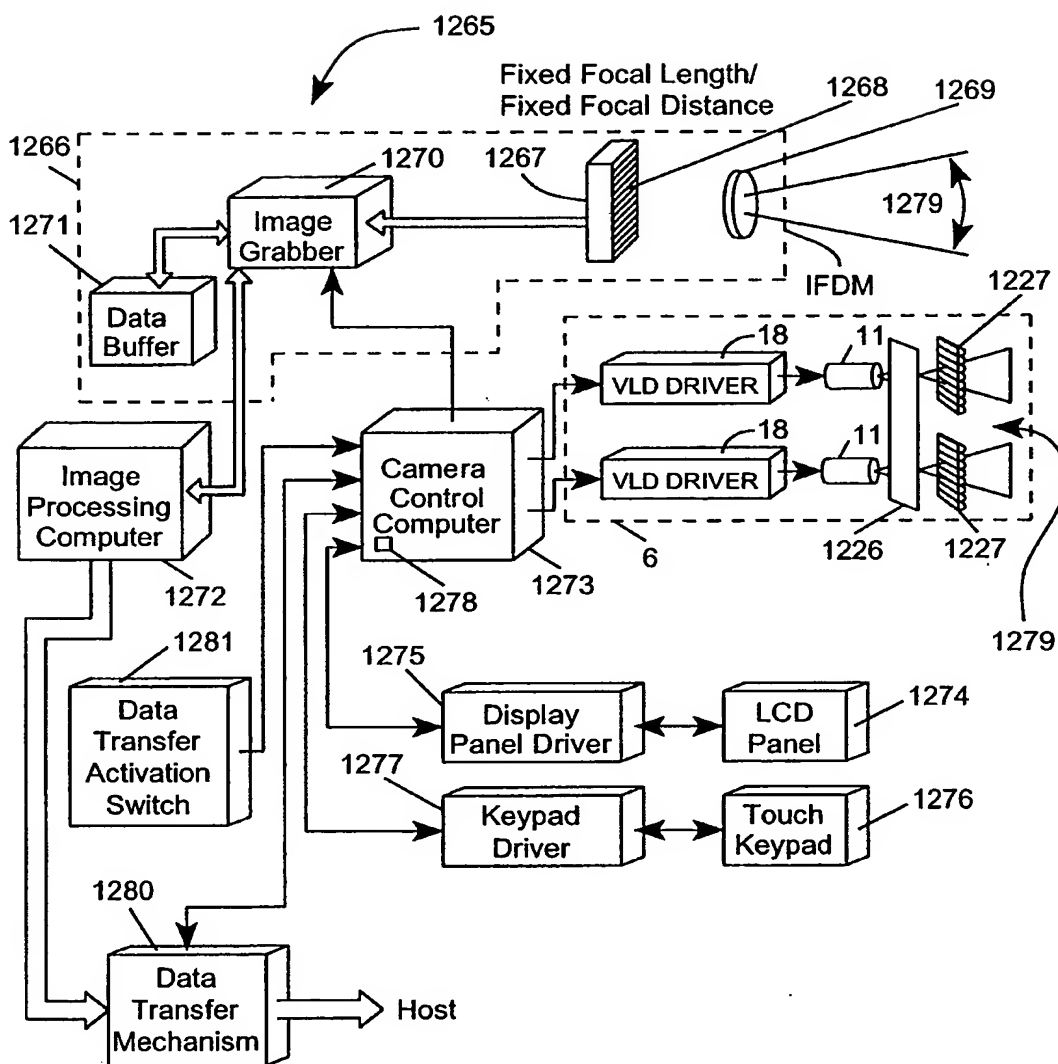


FIG. 40A1



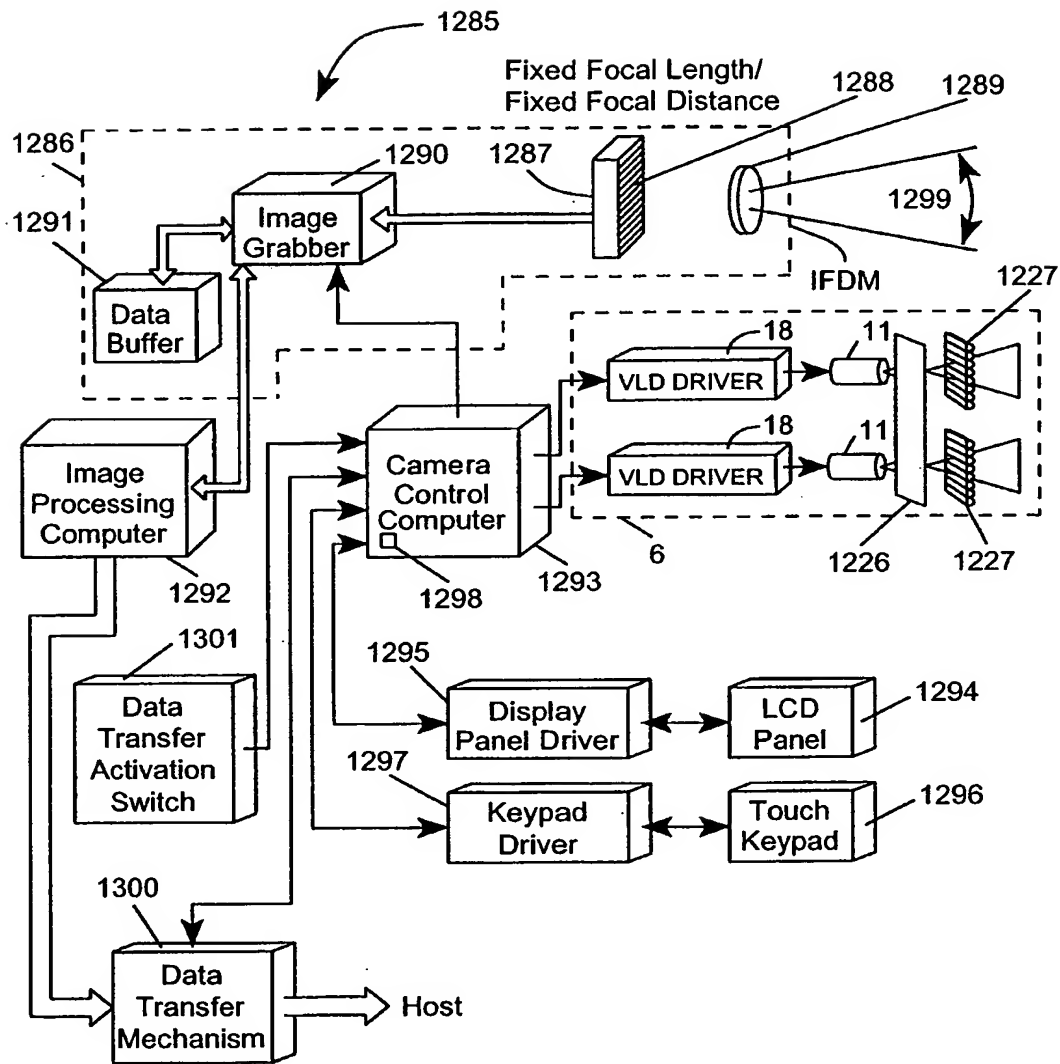
Automatic with IR Object Detection

FIG. 40A2



Automatic with Laser Based Object Detection

FIG. 40A3



Automatic with Passive CCD
Based Object Detection

FIG. 40A4

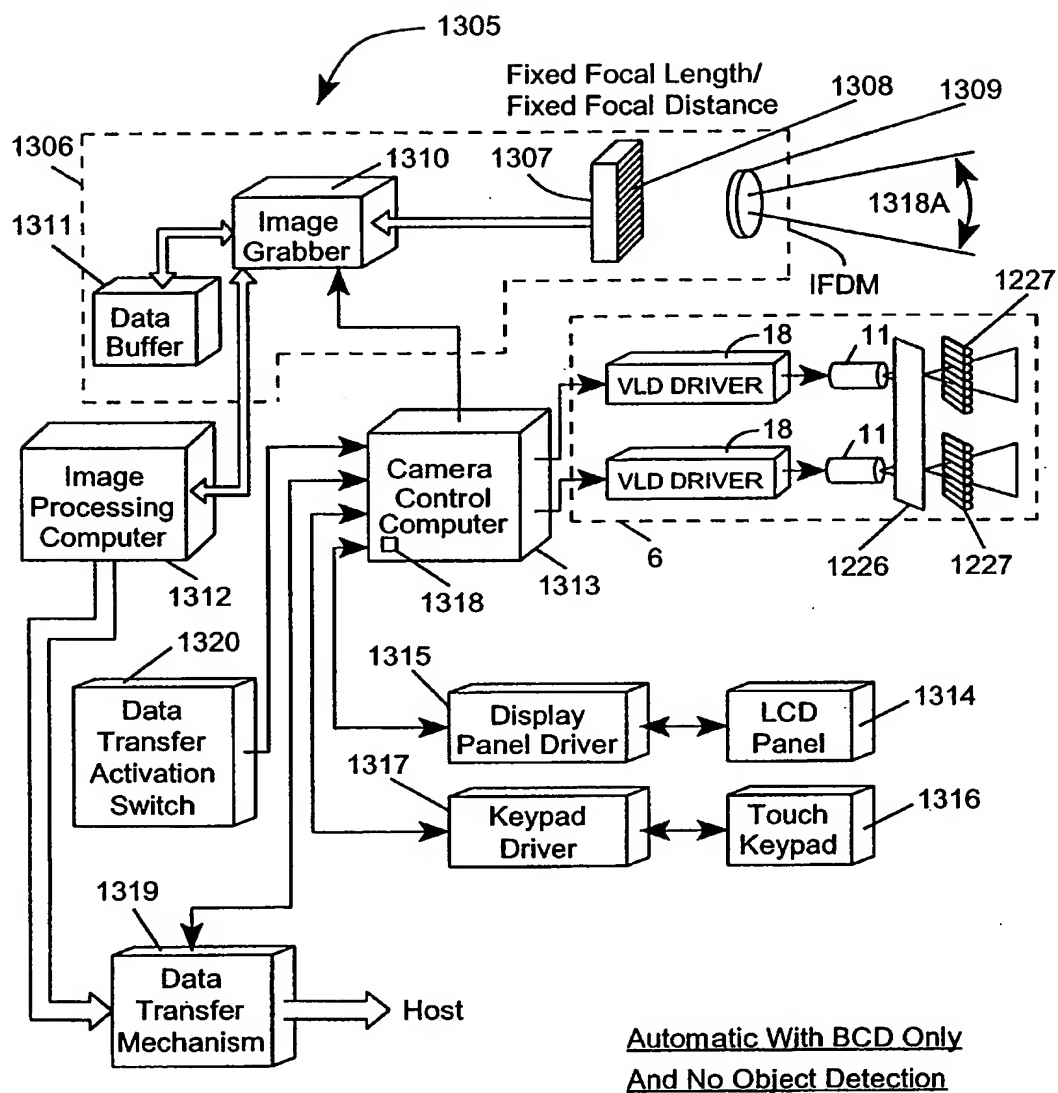


FIG. 40A5

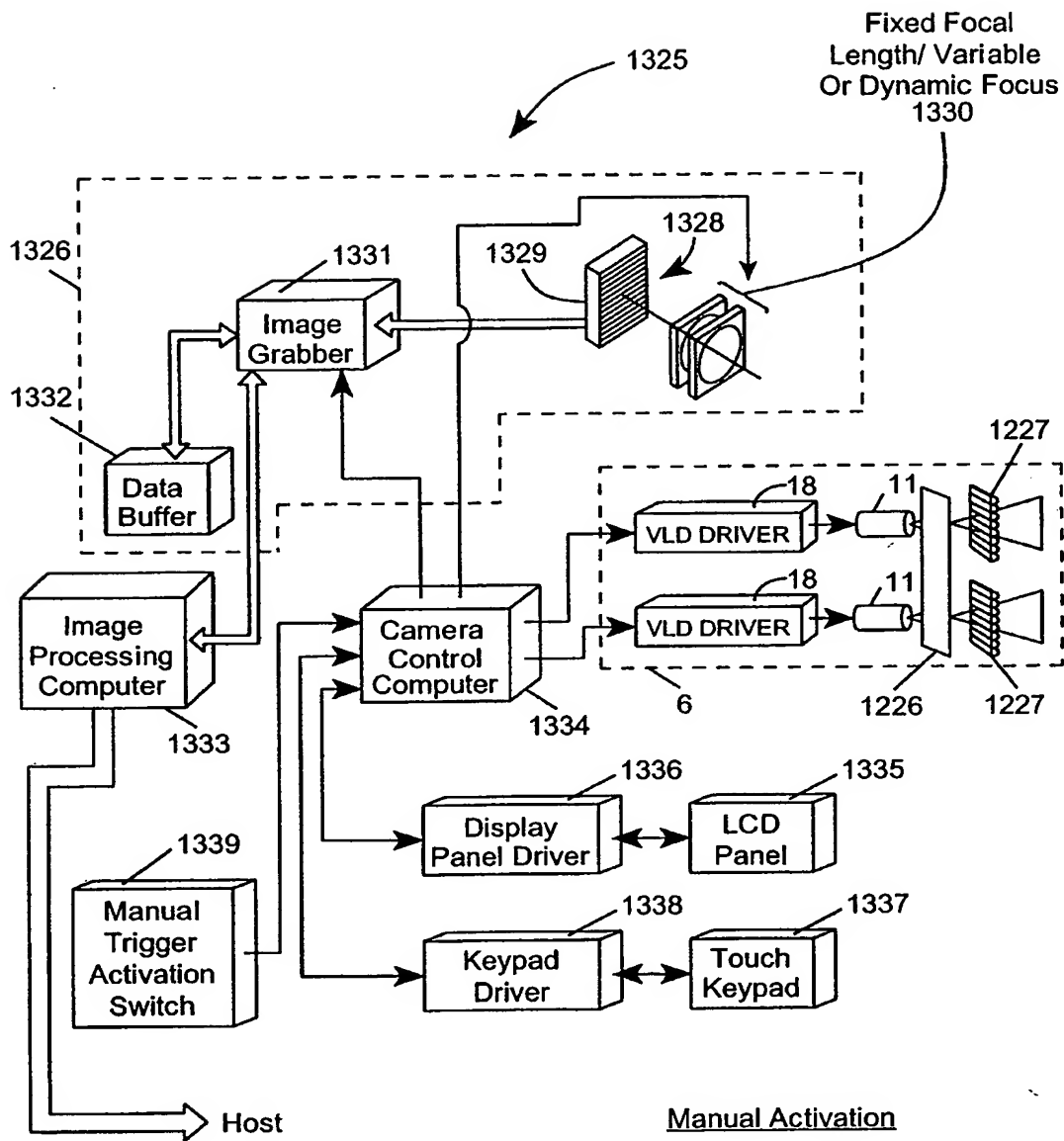
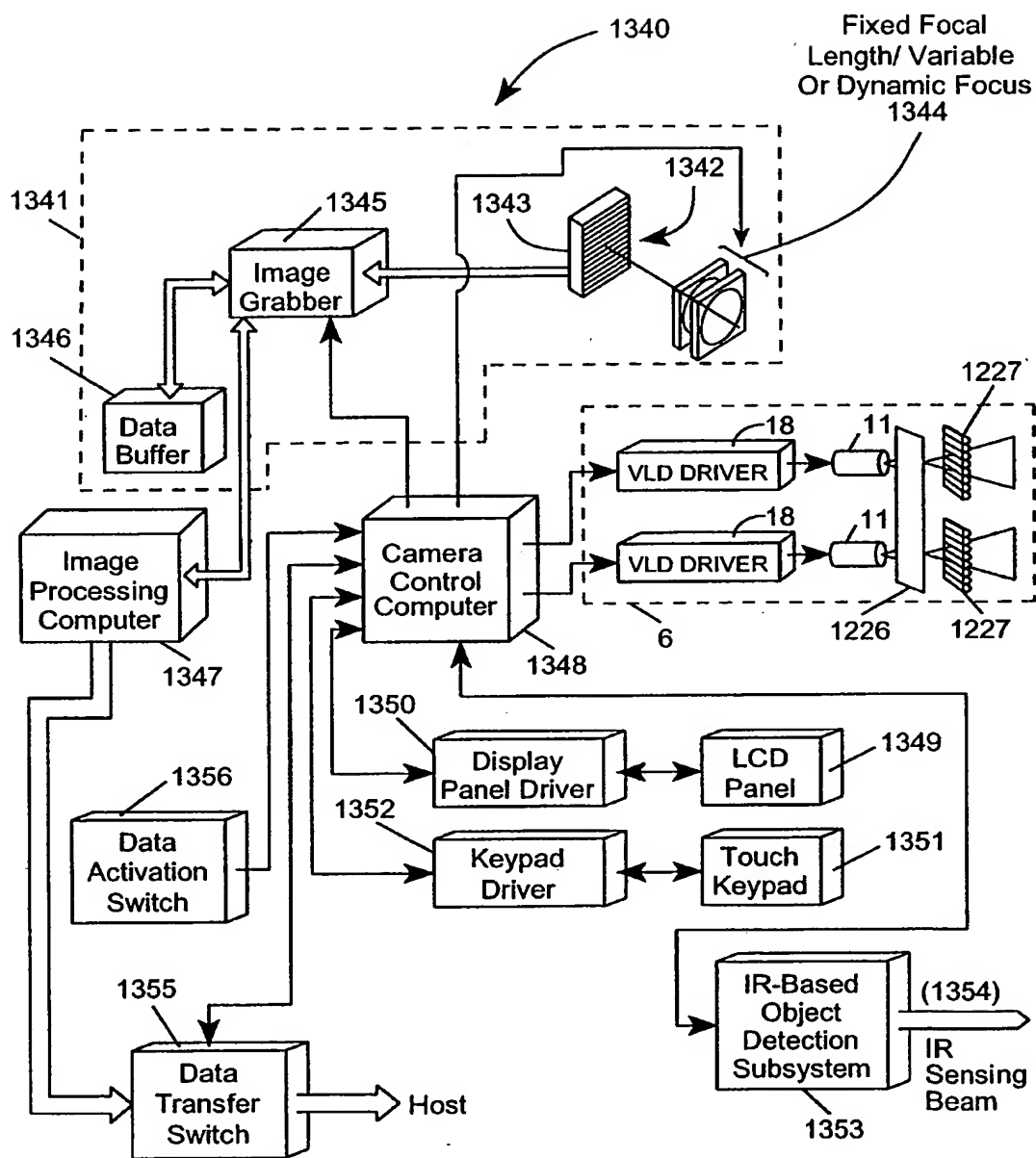


FIG. 40B1



Automatic With IR-Based
Object Detection

FIG. 40B2

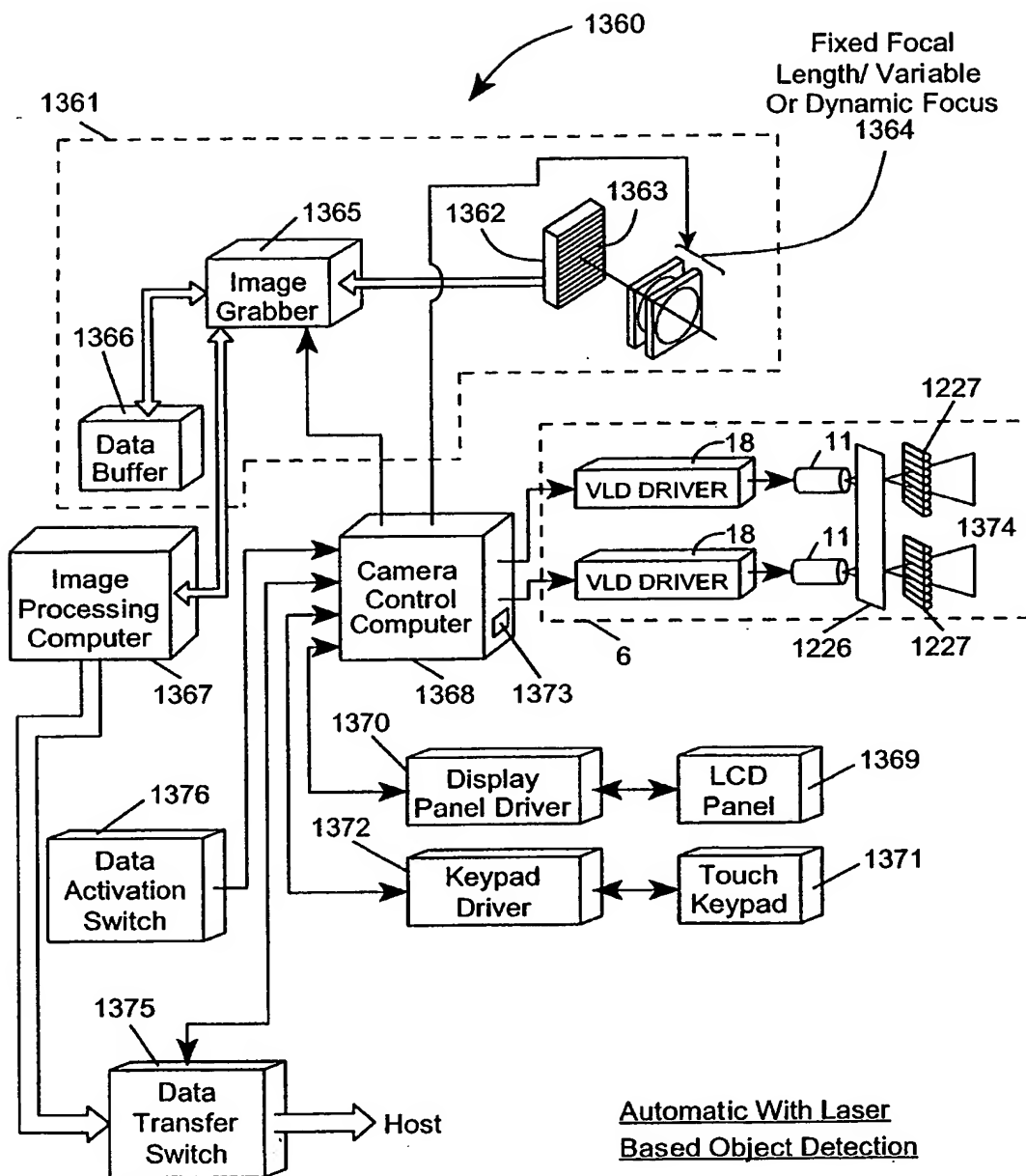


FIG. 40B3

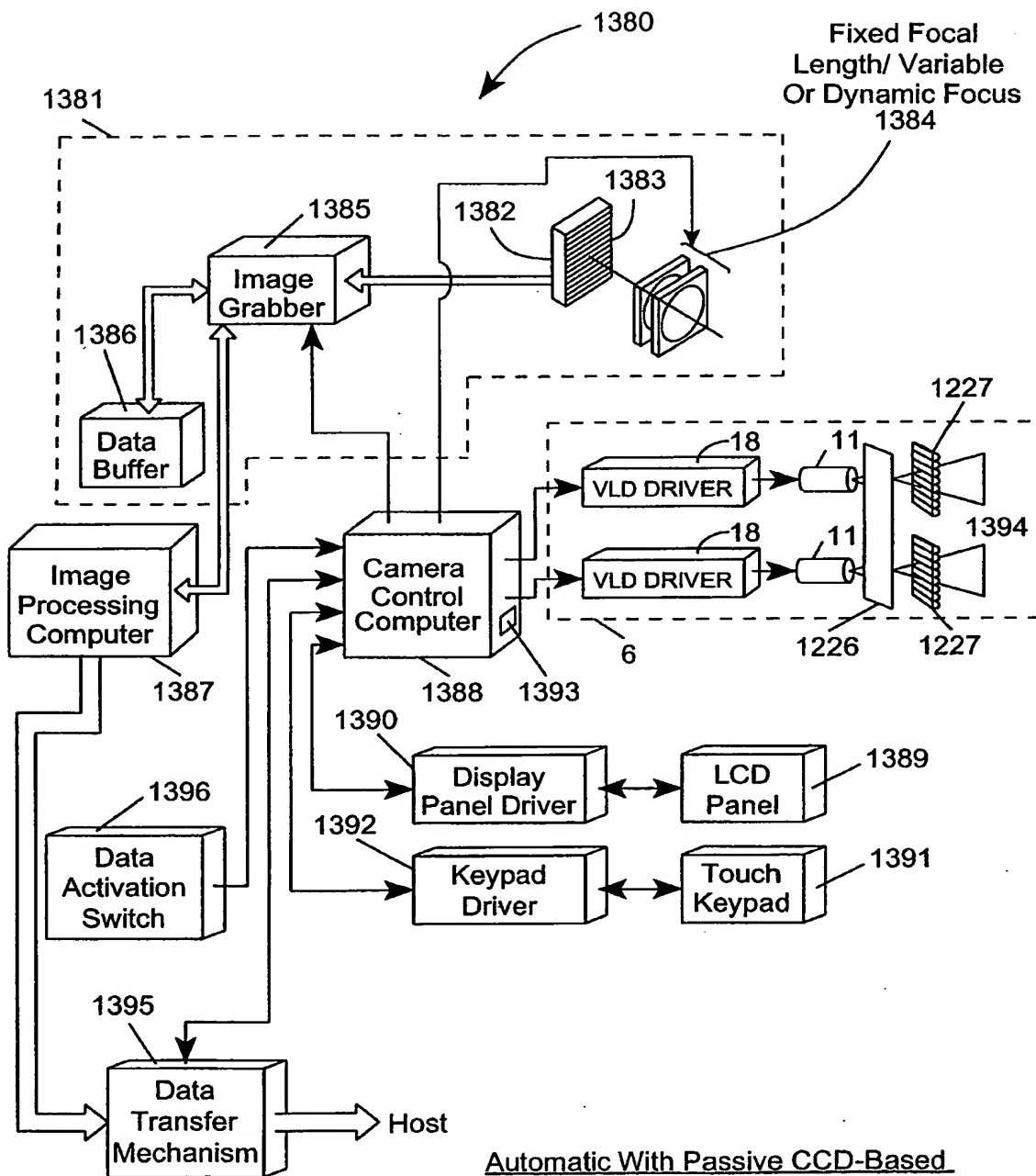


FIG. 40B4

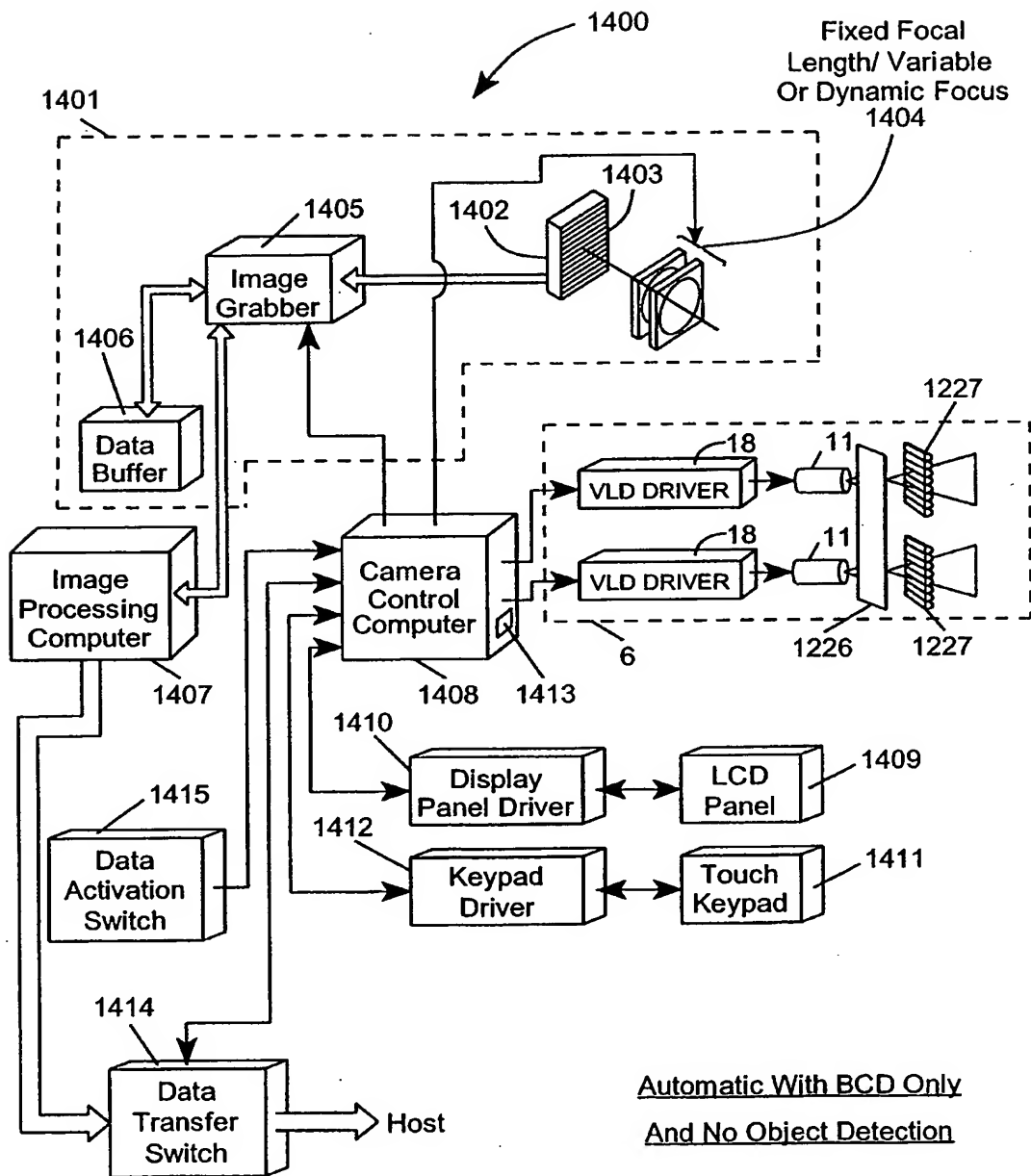


FIG. 40B5

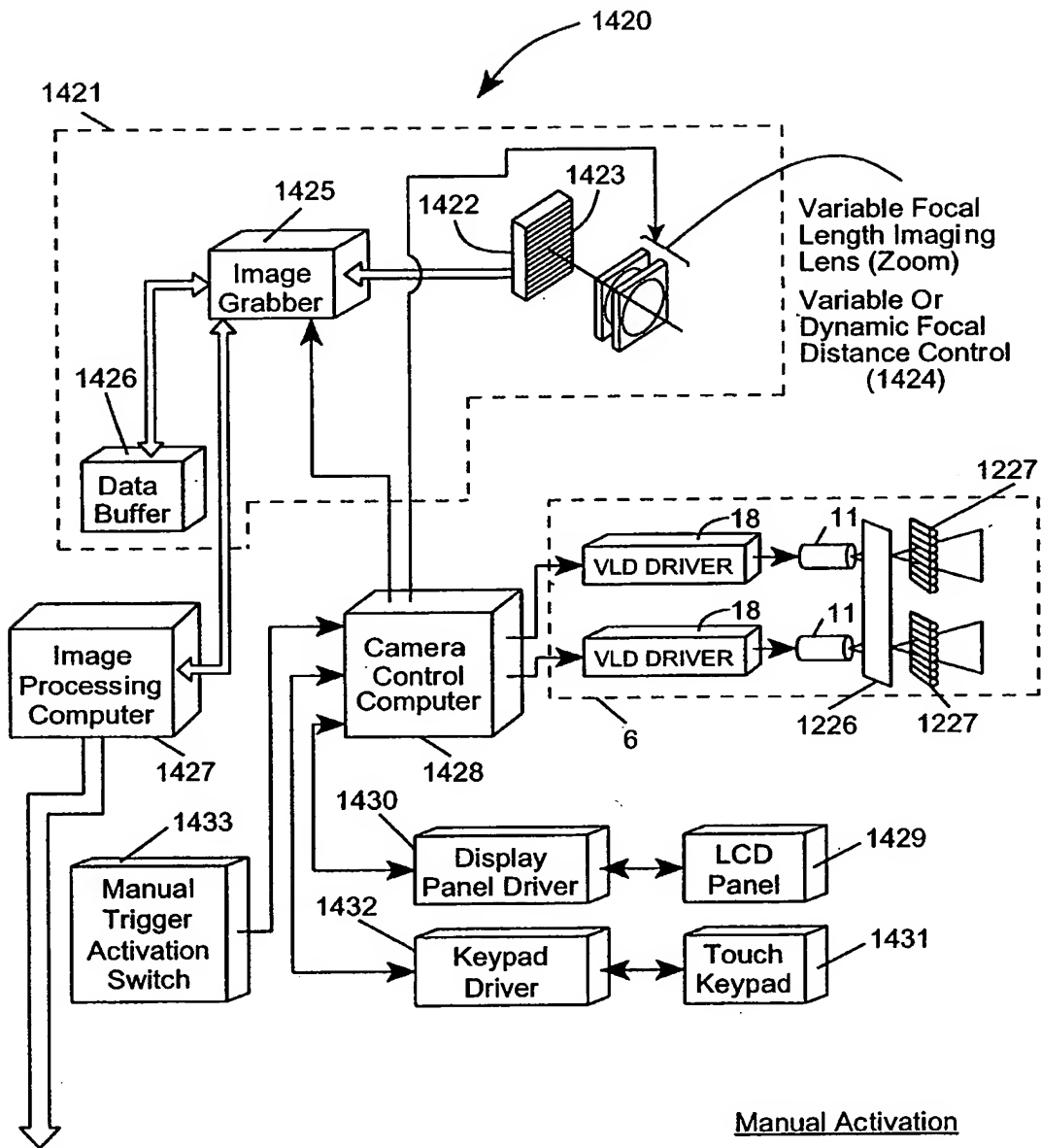


FIG. 40C1

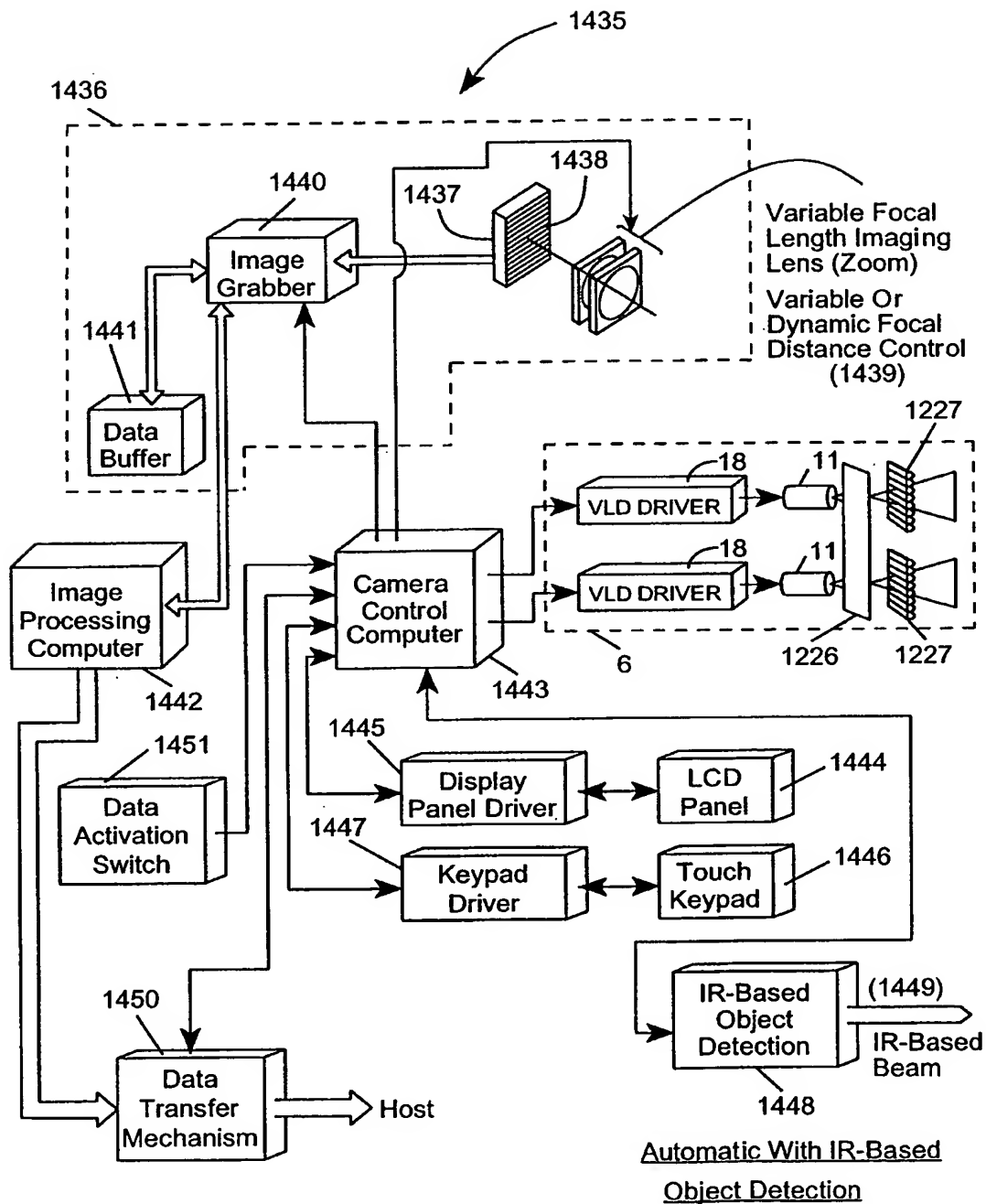


FIG. 40C2

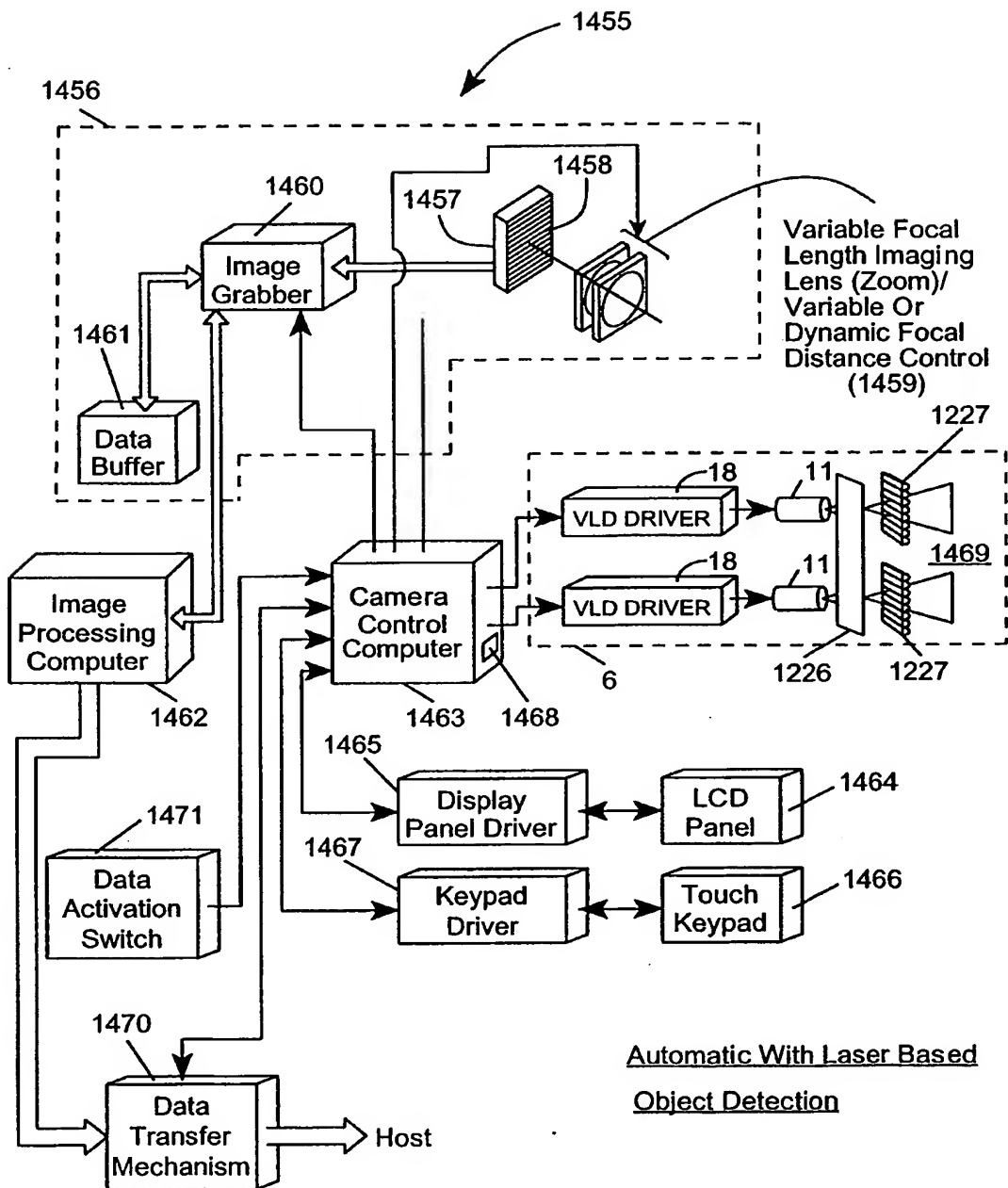


FIG. 40C3

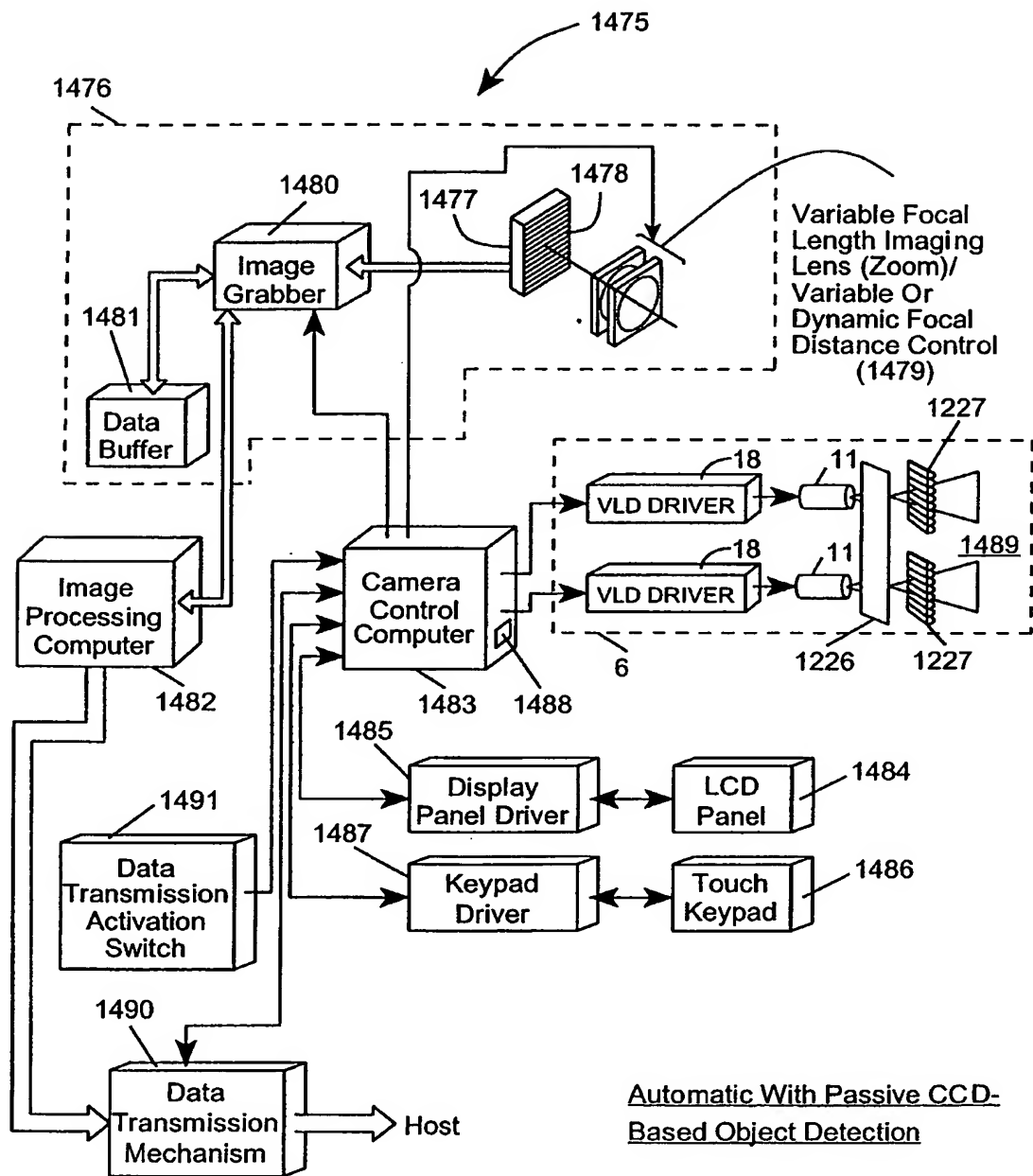


FIG. 40C4

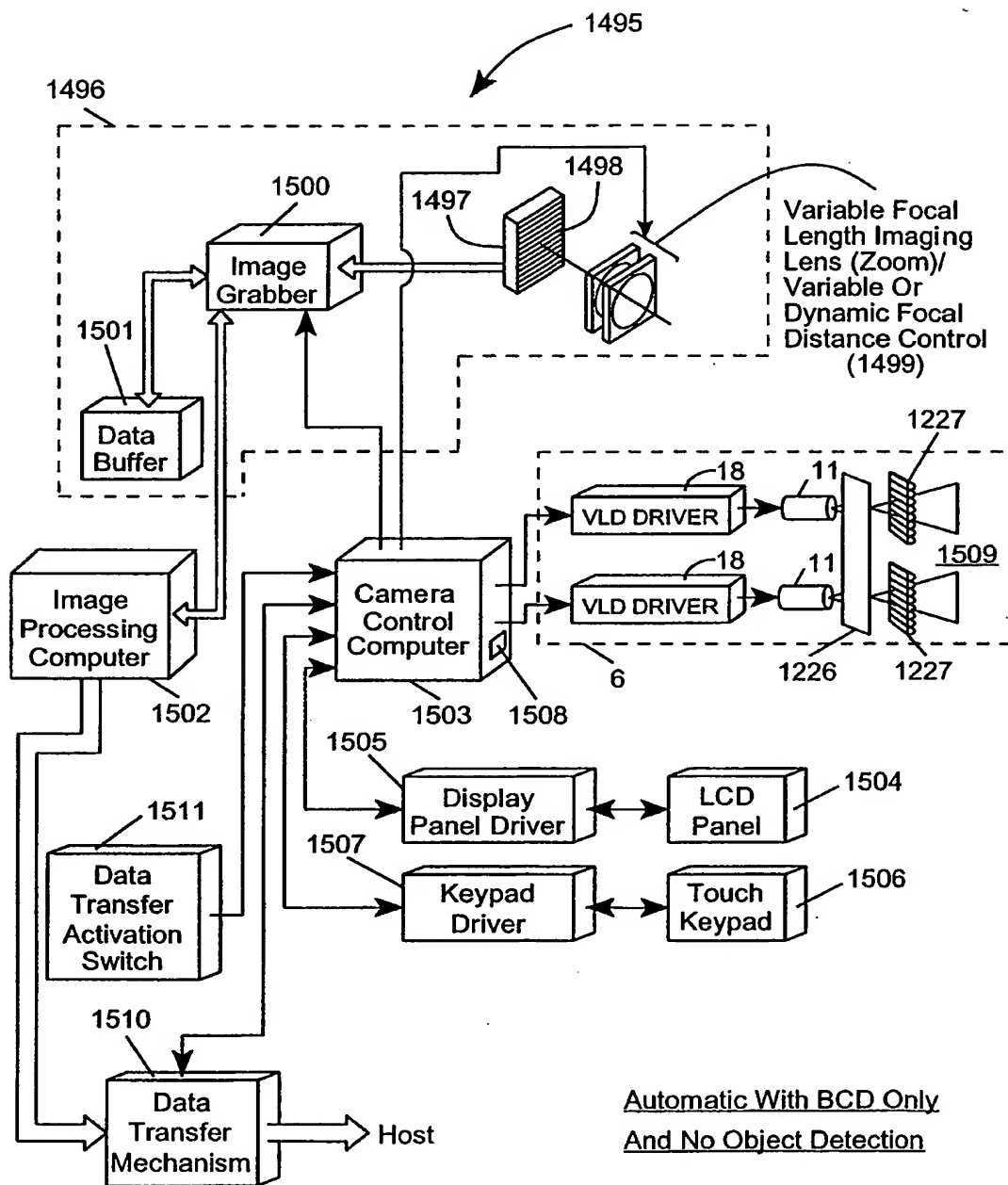


FIG. 40C5

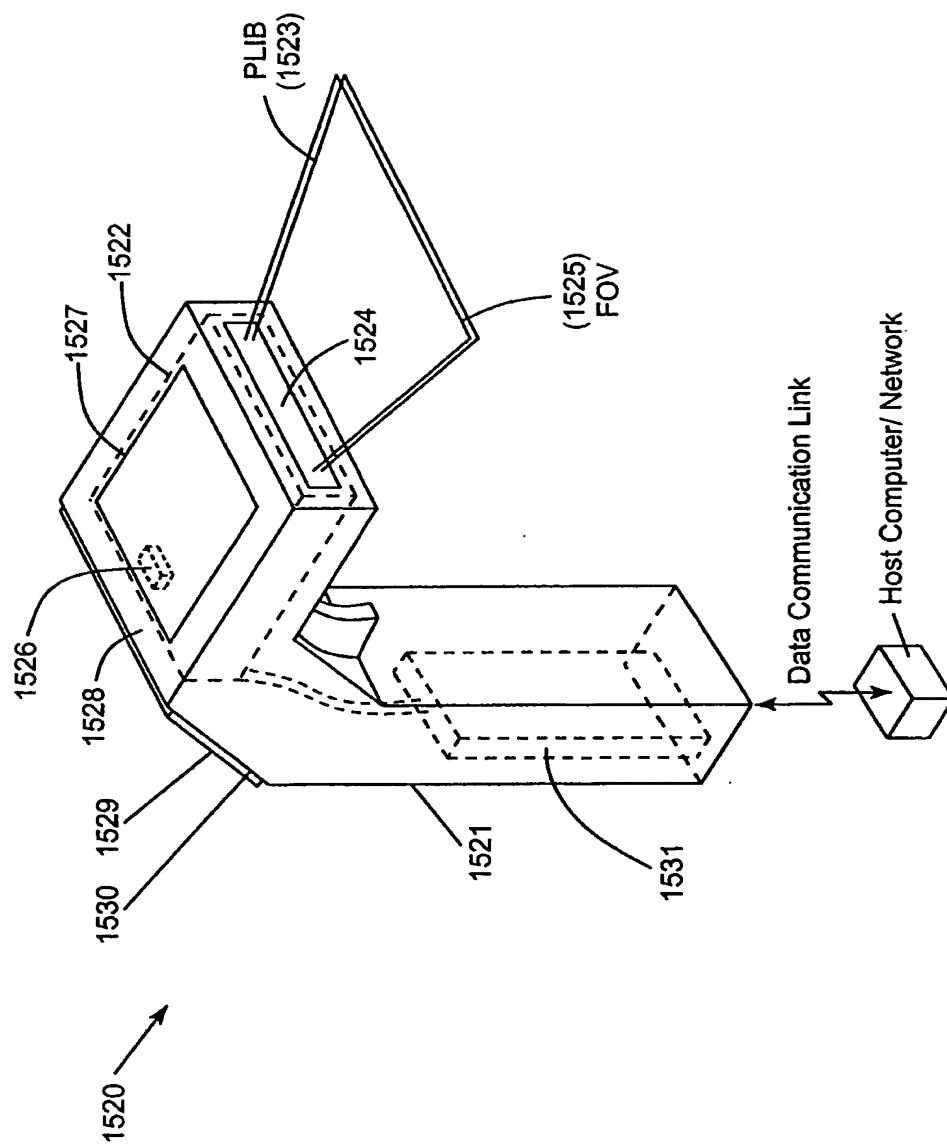


FIG. 41A

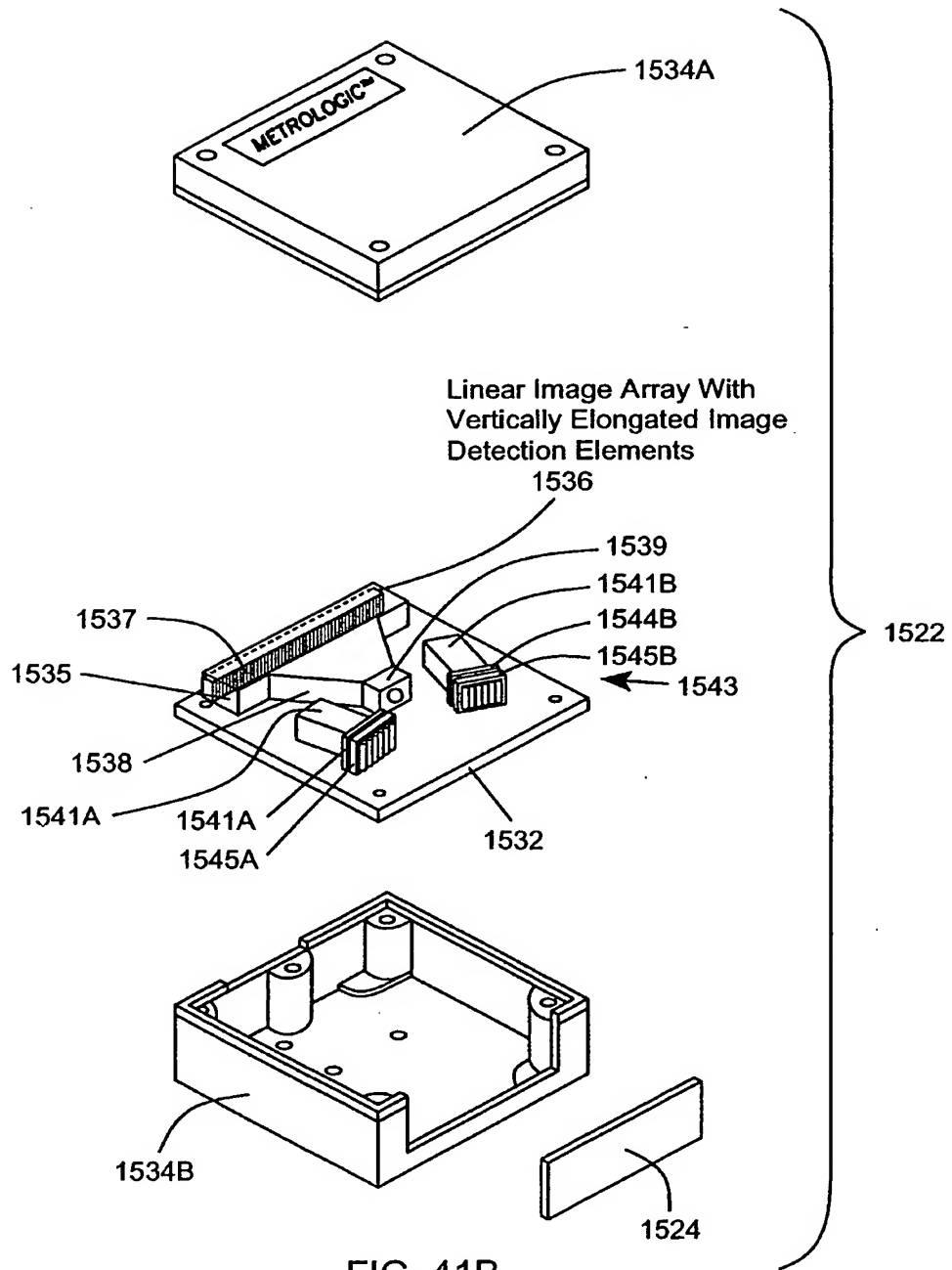


FIG. 41B

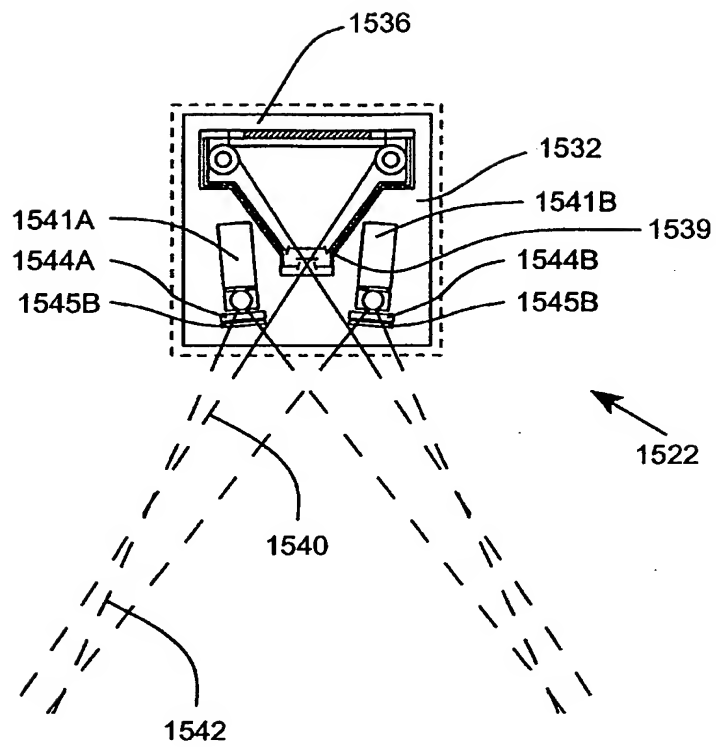


FIG. 41C

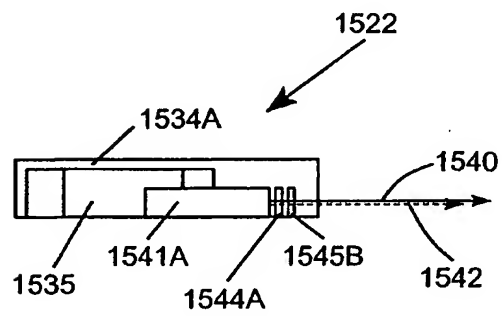


FIG. 41D

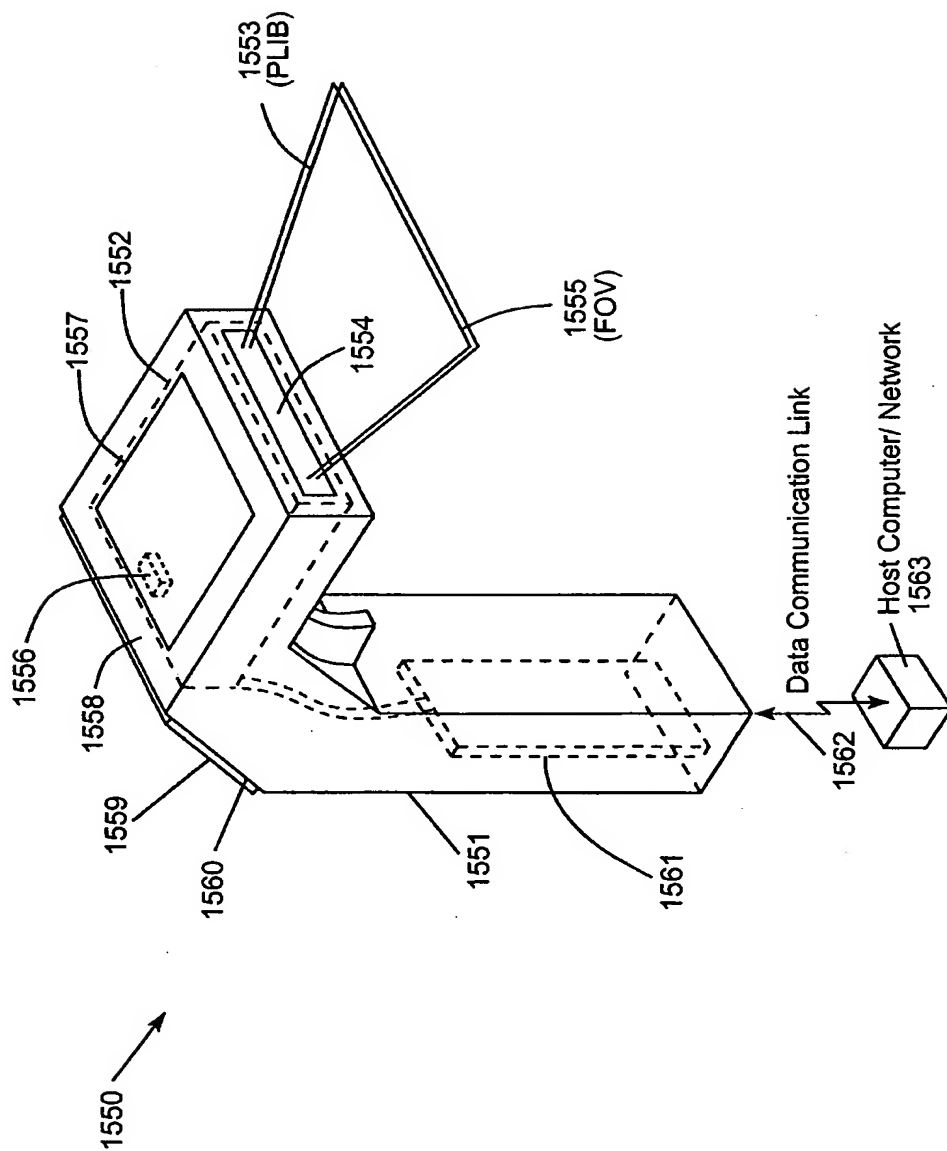


FIG. 42A

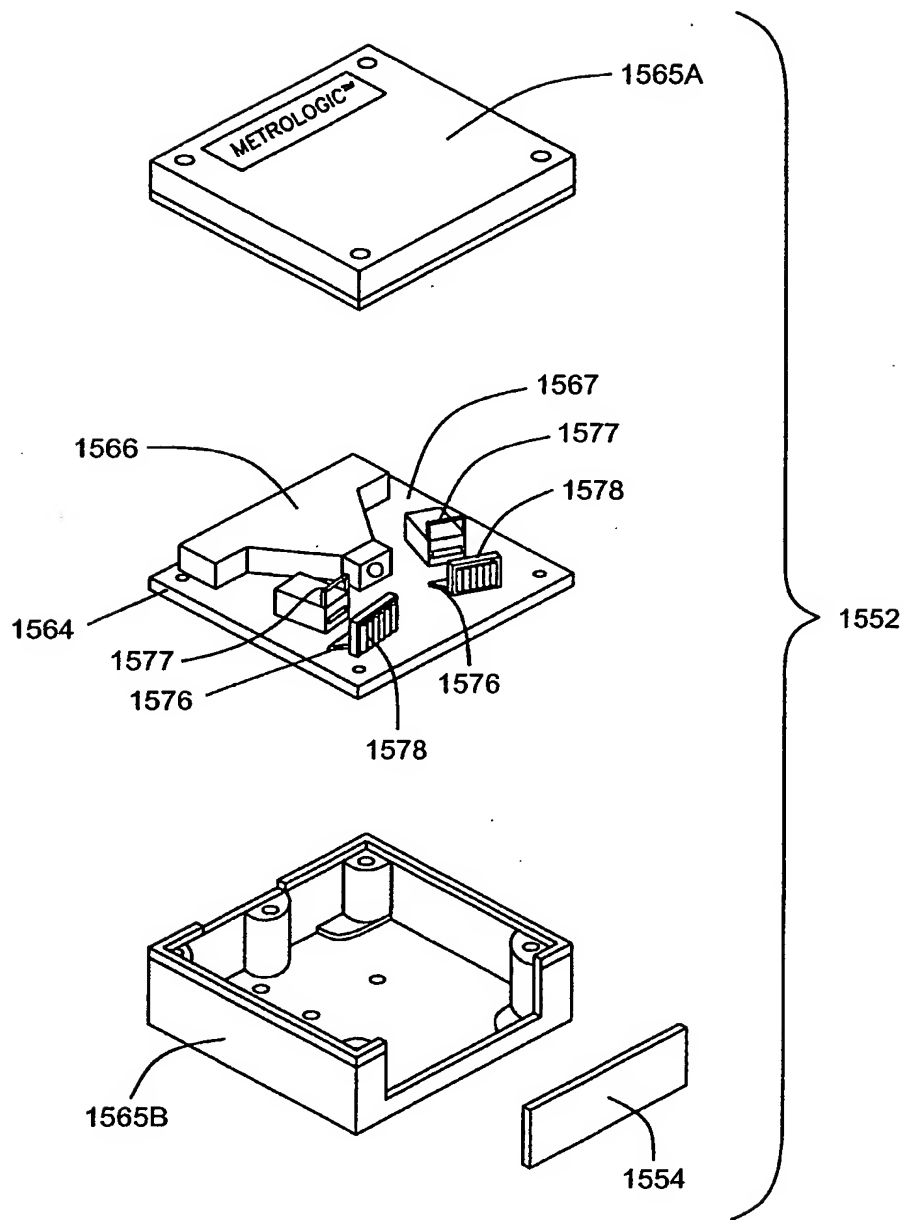


FIG. 42B

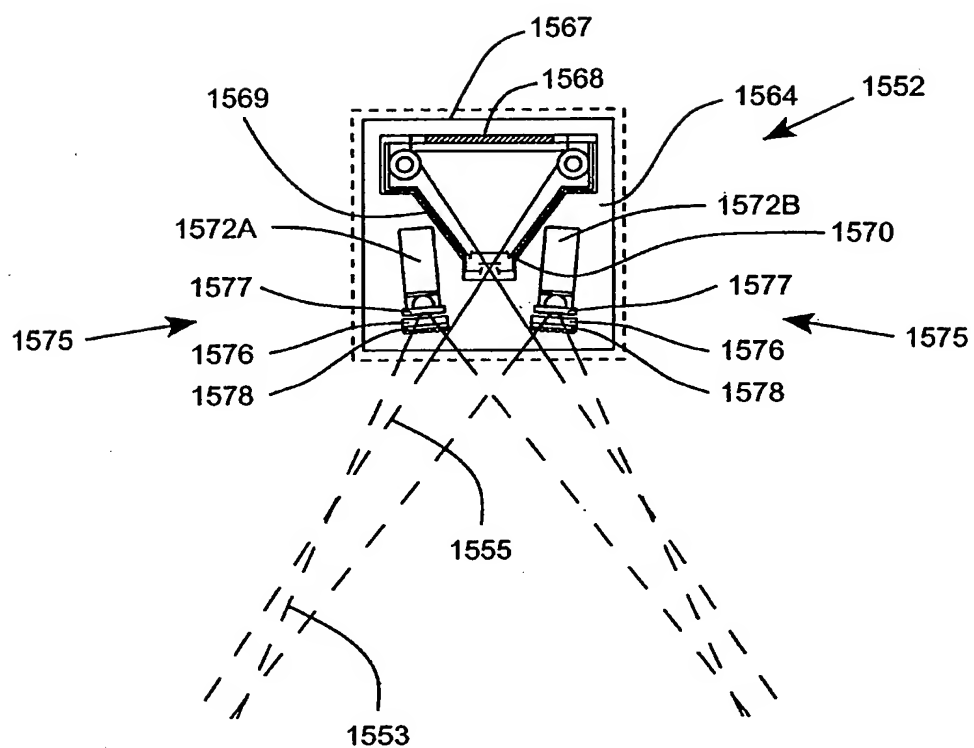


FIG. 42C

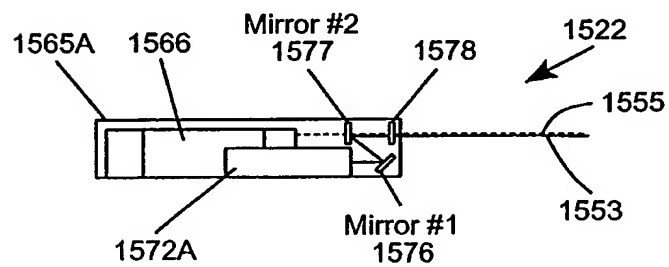


FIG. 42D

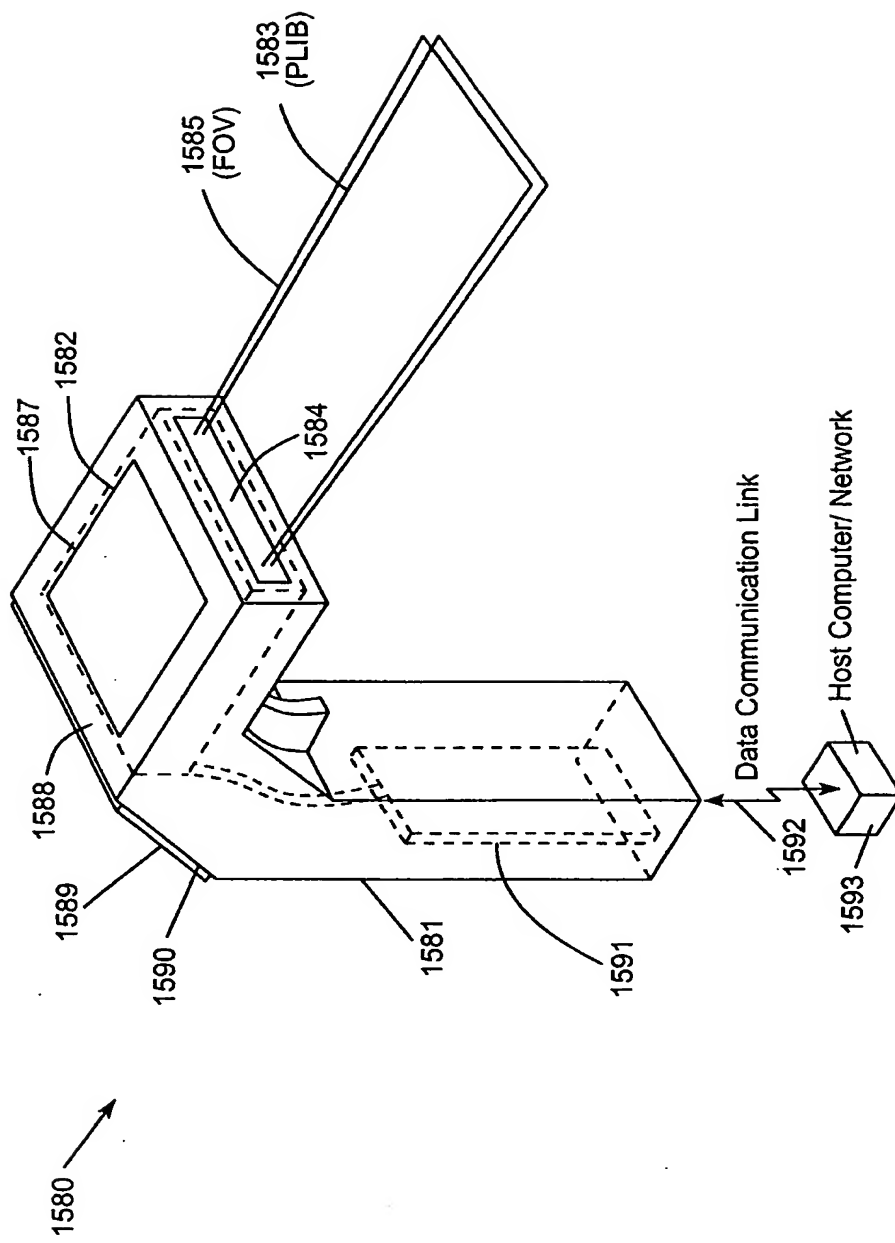


FIG. 43A

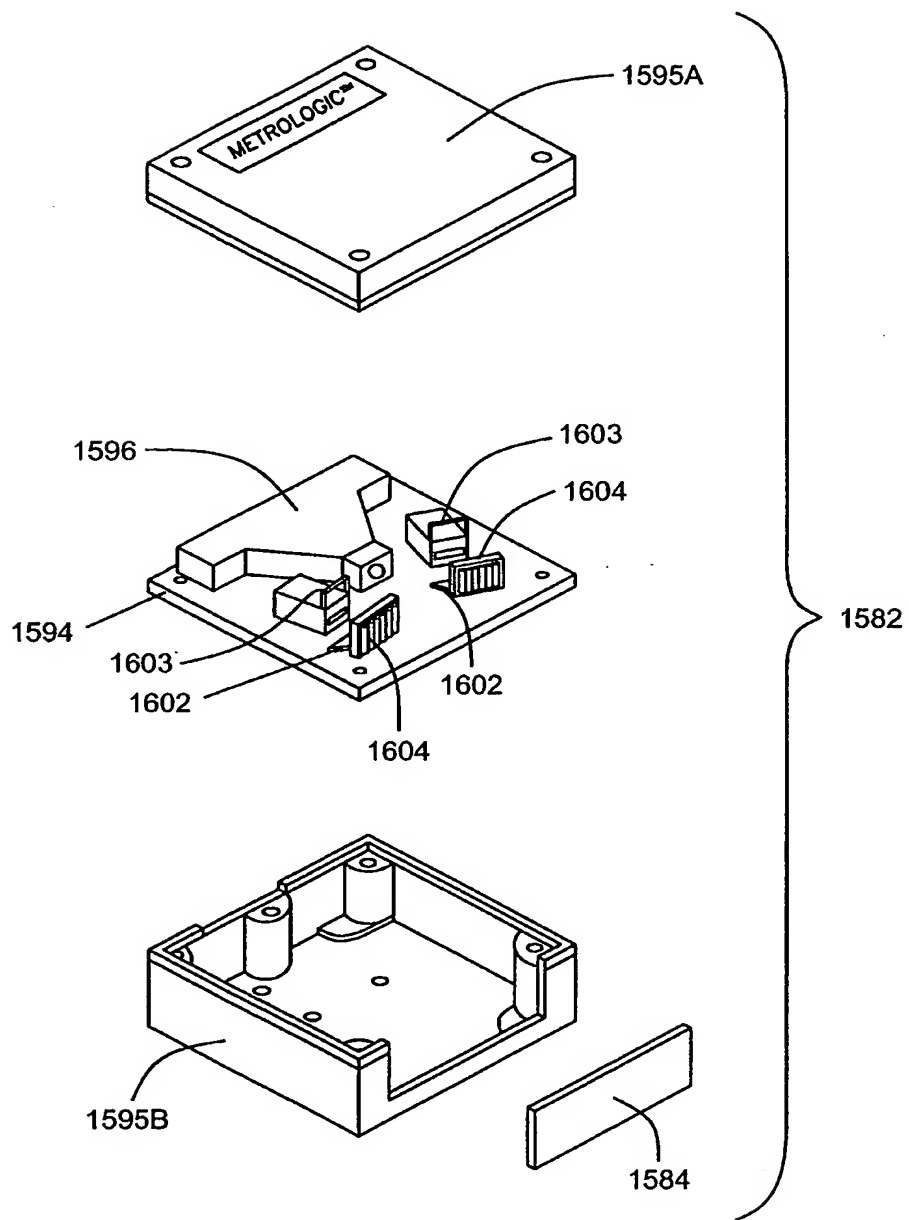


FIG. 43B

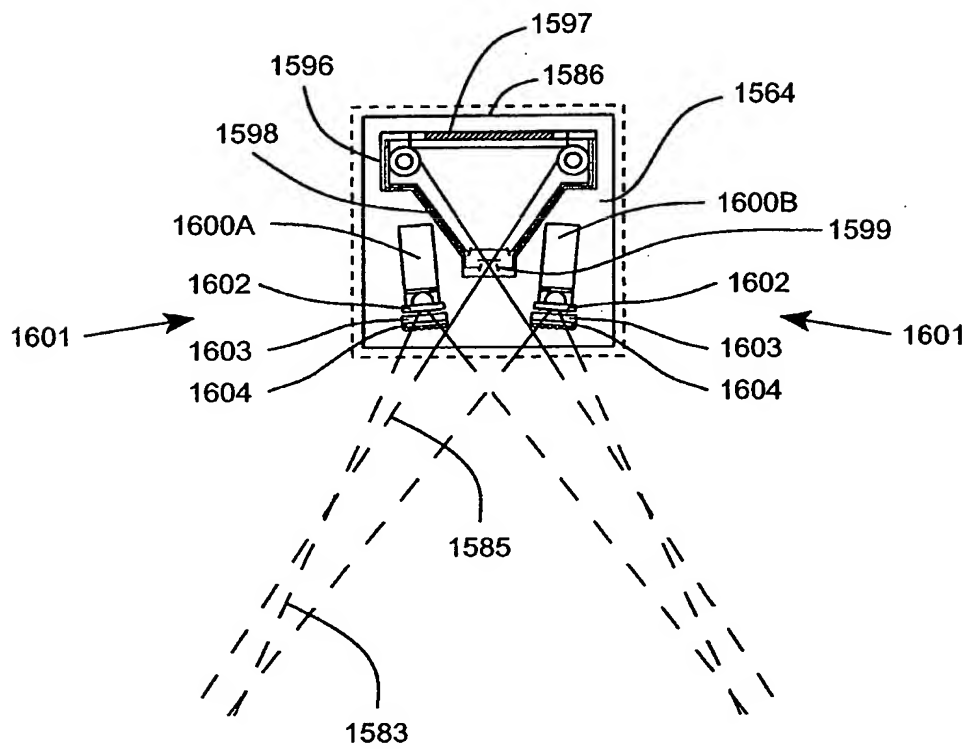


FIG. 43C

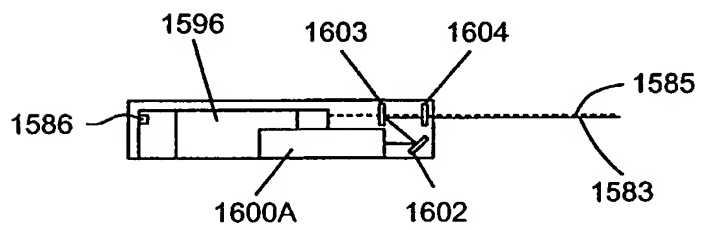


FIG. 43D

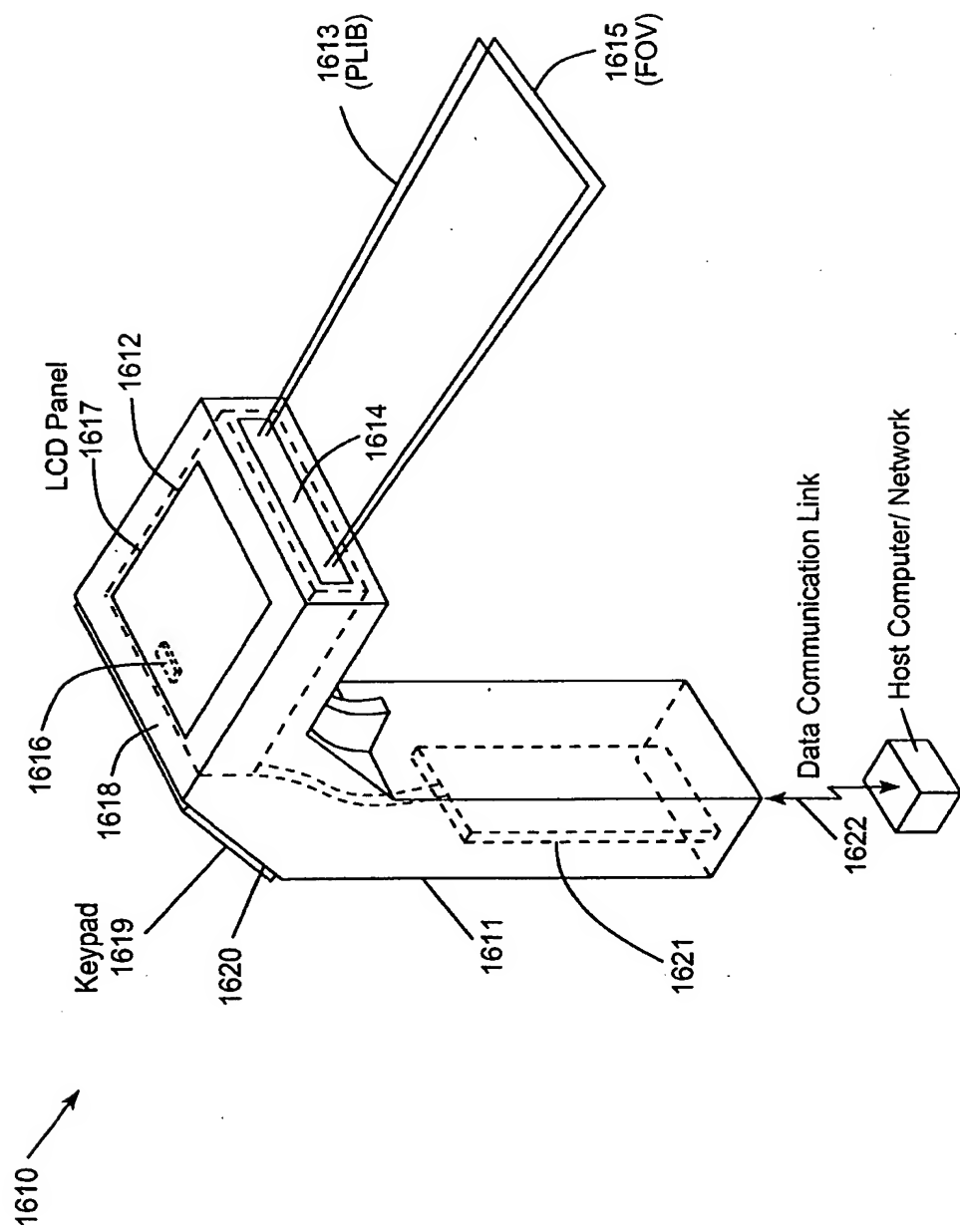


FIG. 44A

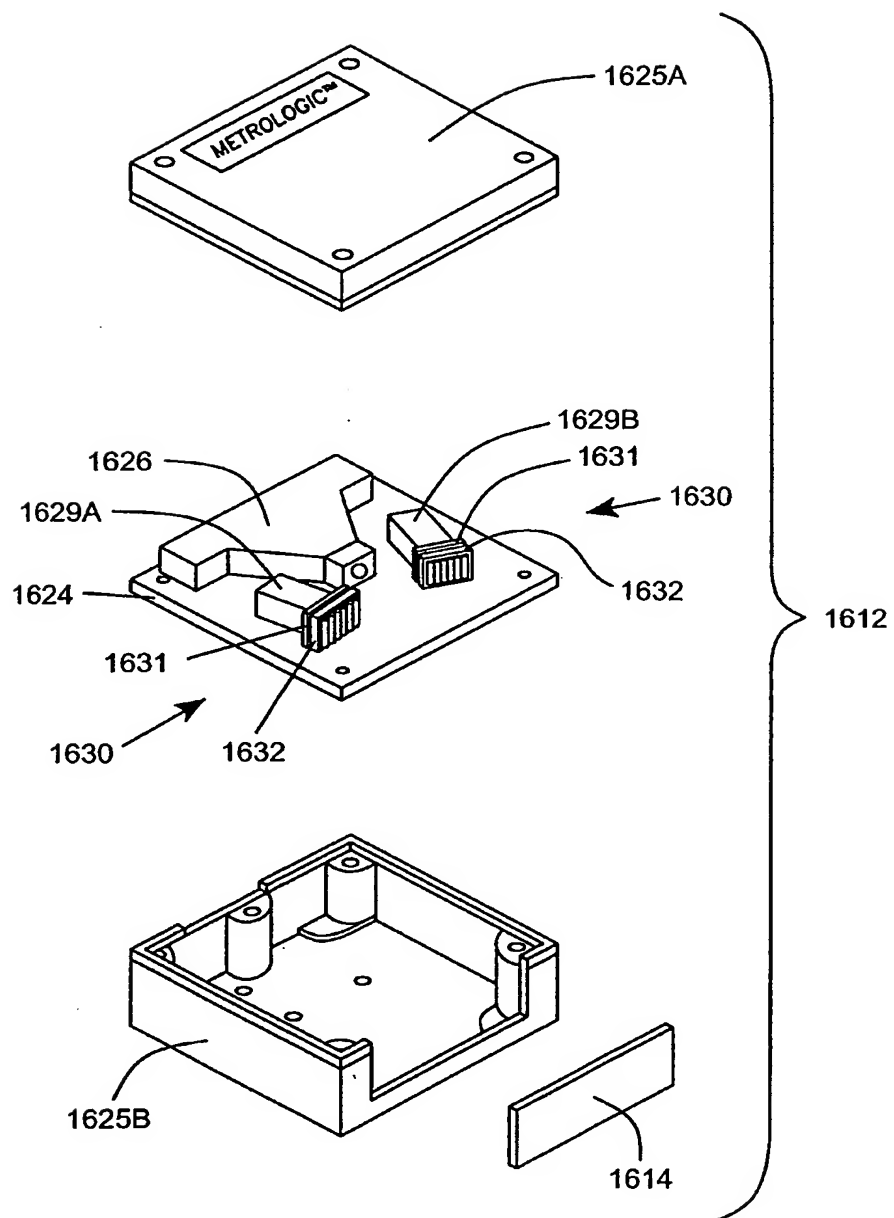


FIG. 44B

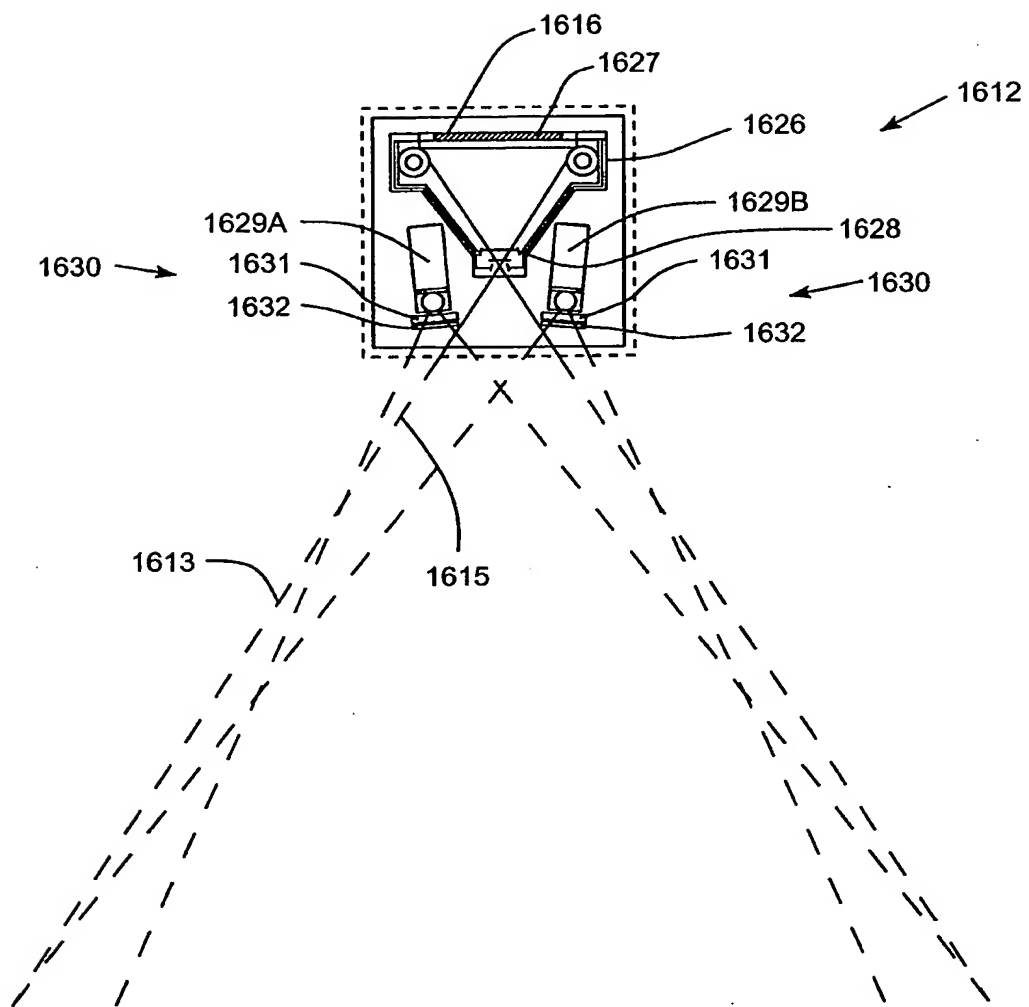


FIG. 44C

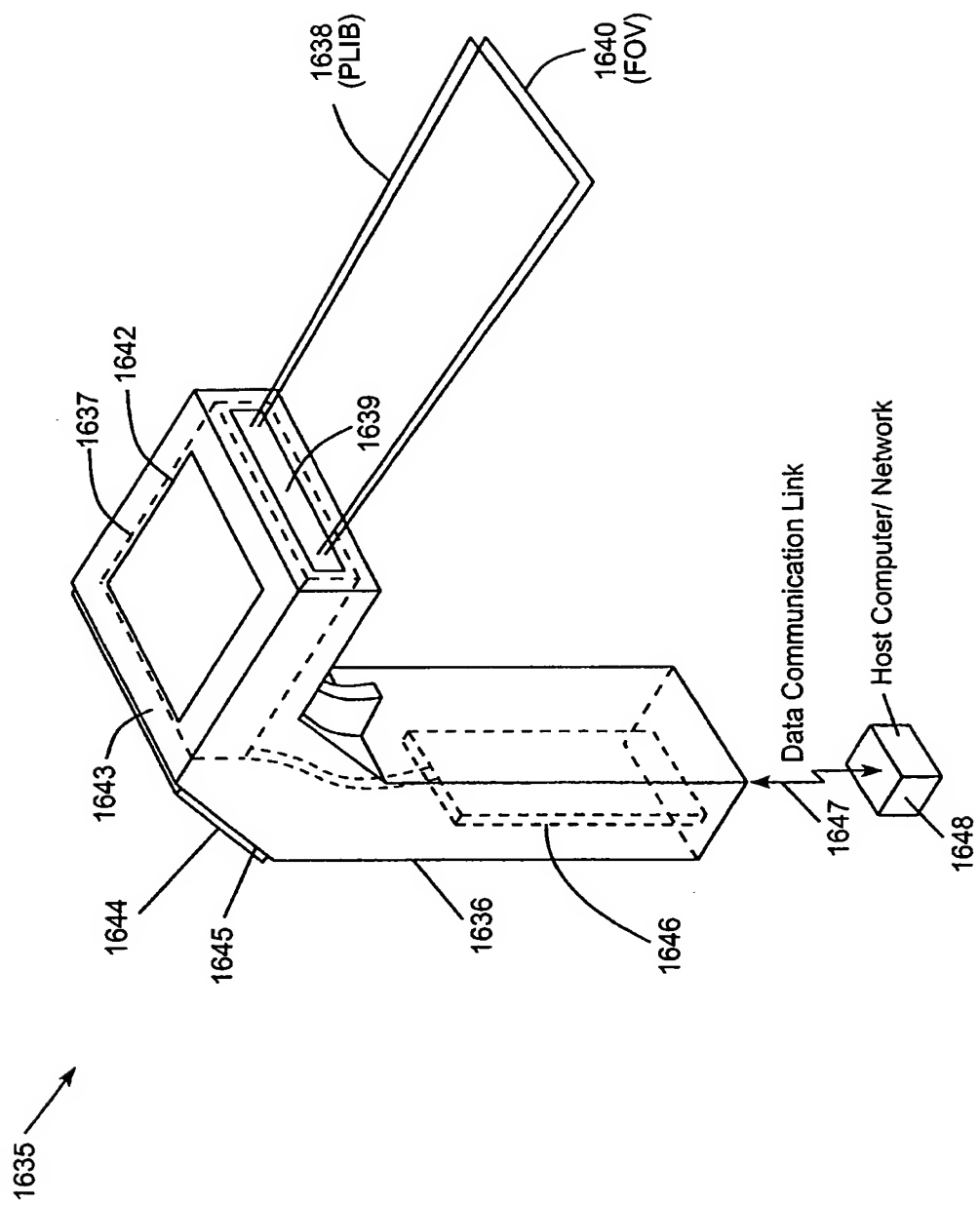


FIG. 45A

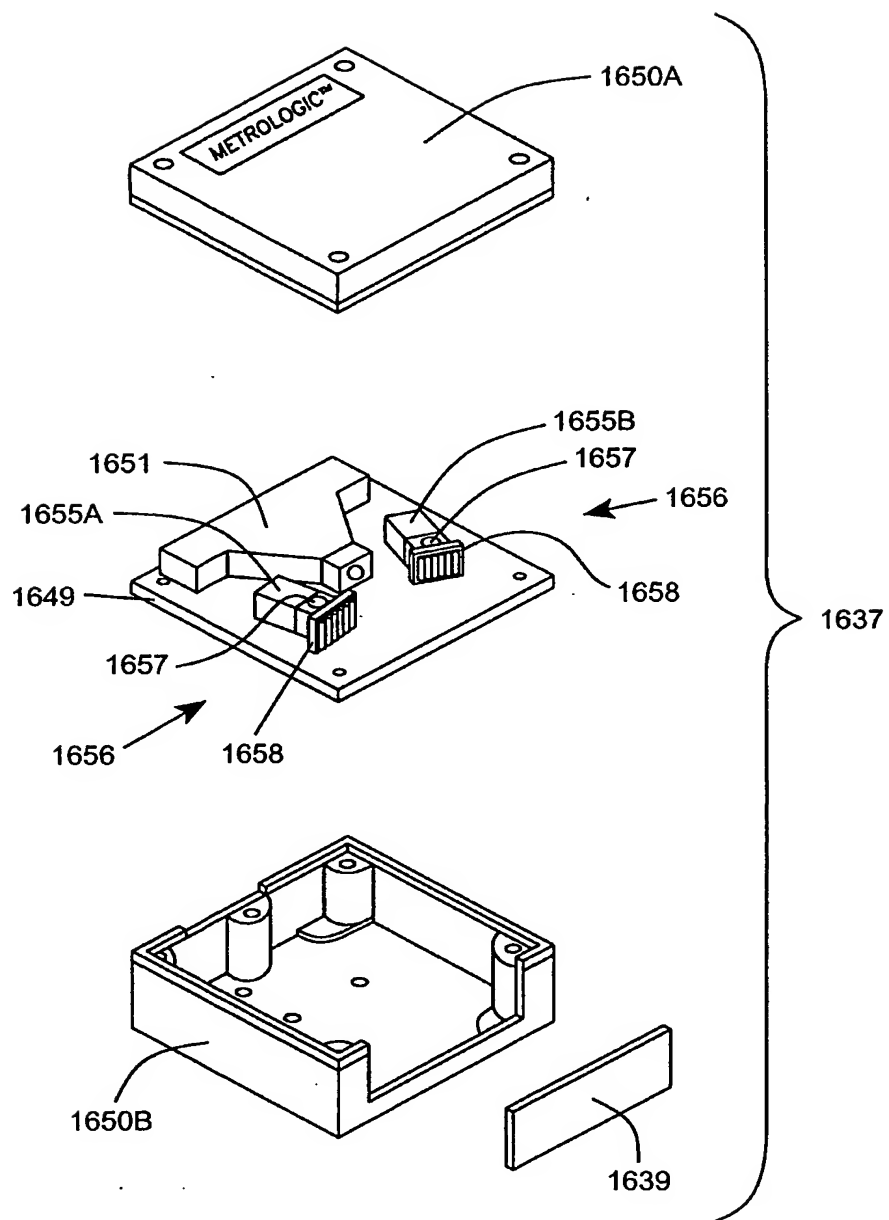


FIG. 45B

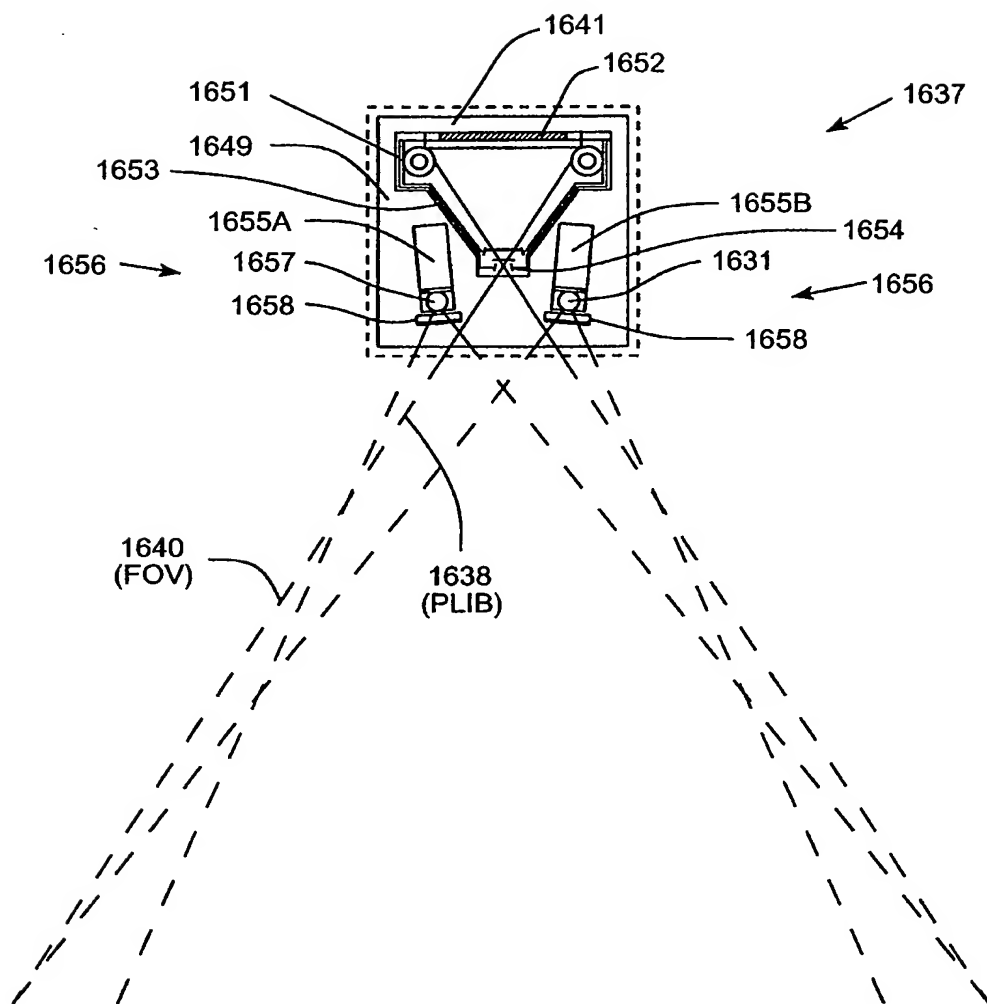


FIG. 45C

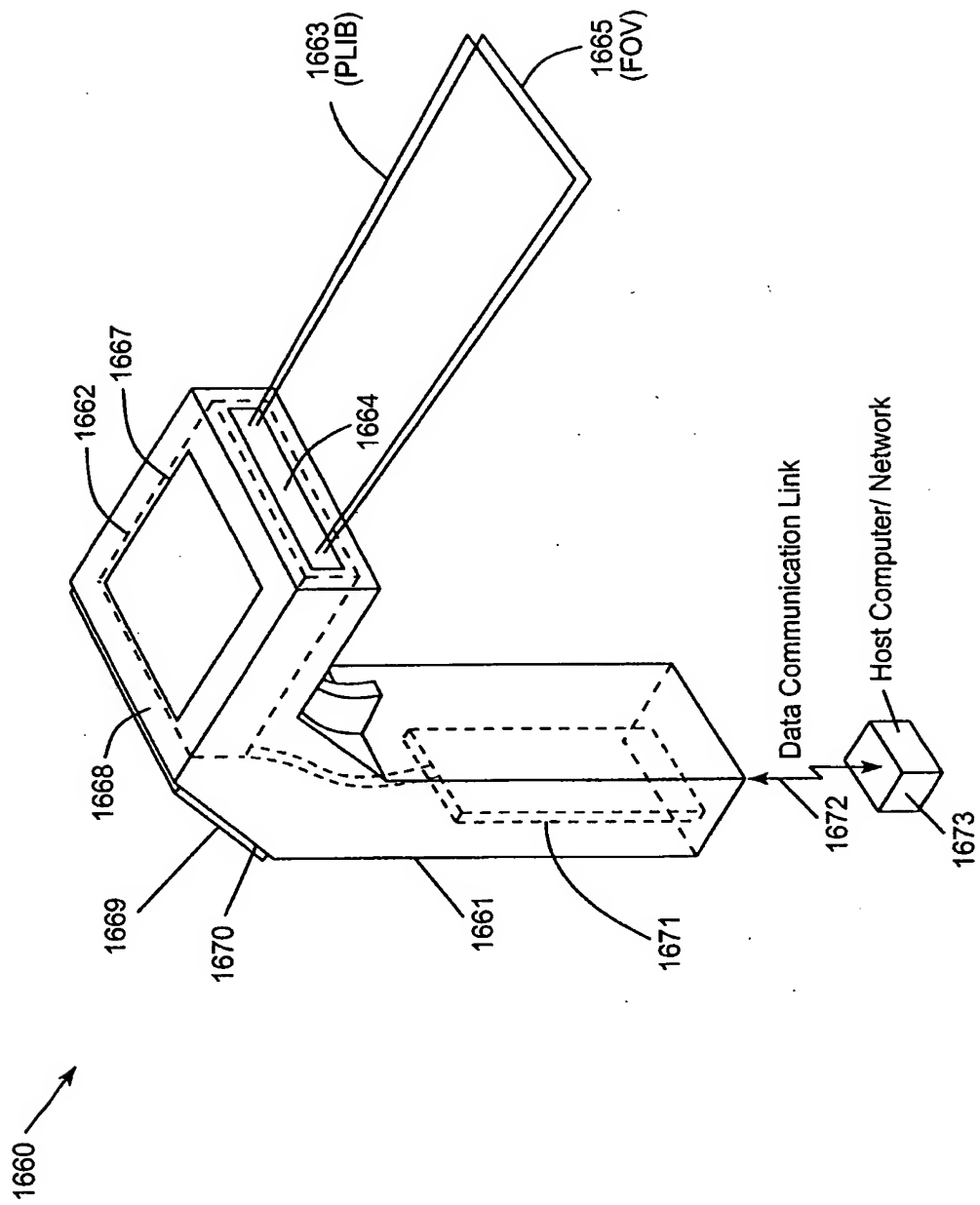


FIG. 46A

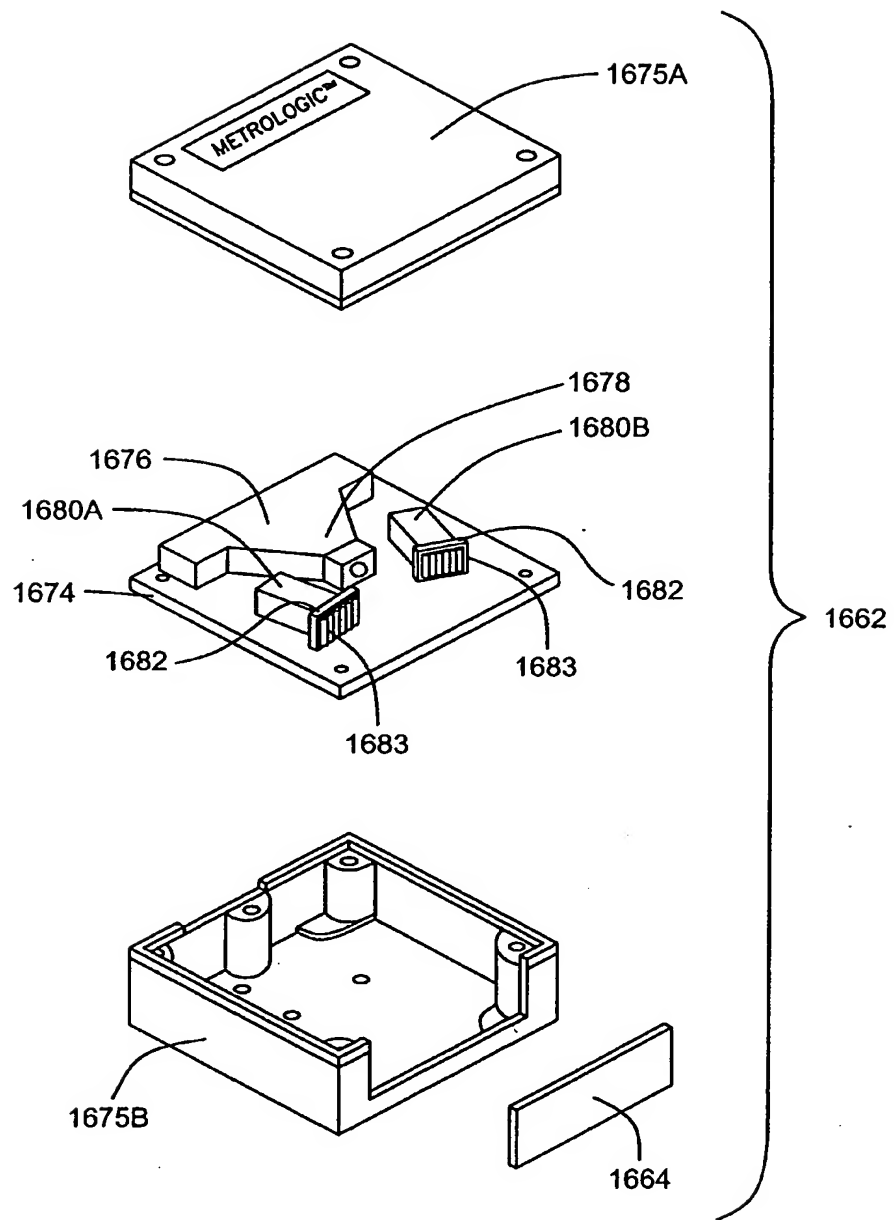


FIG. 46B

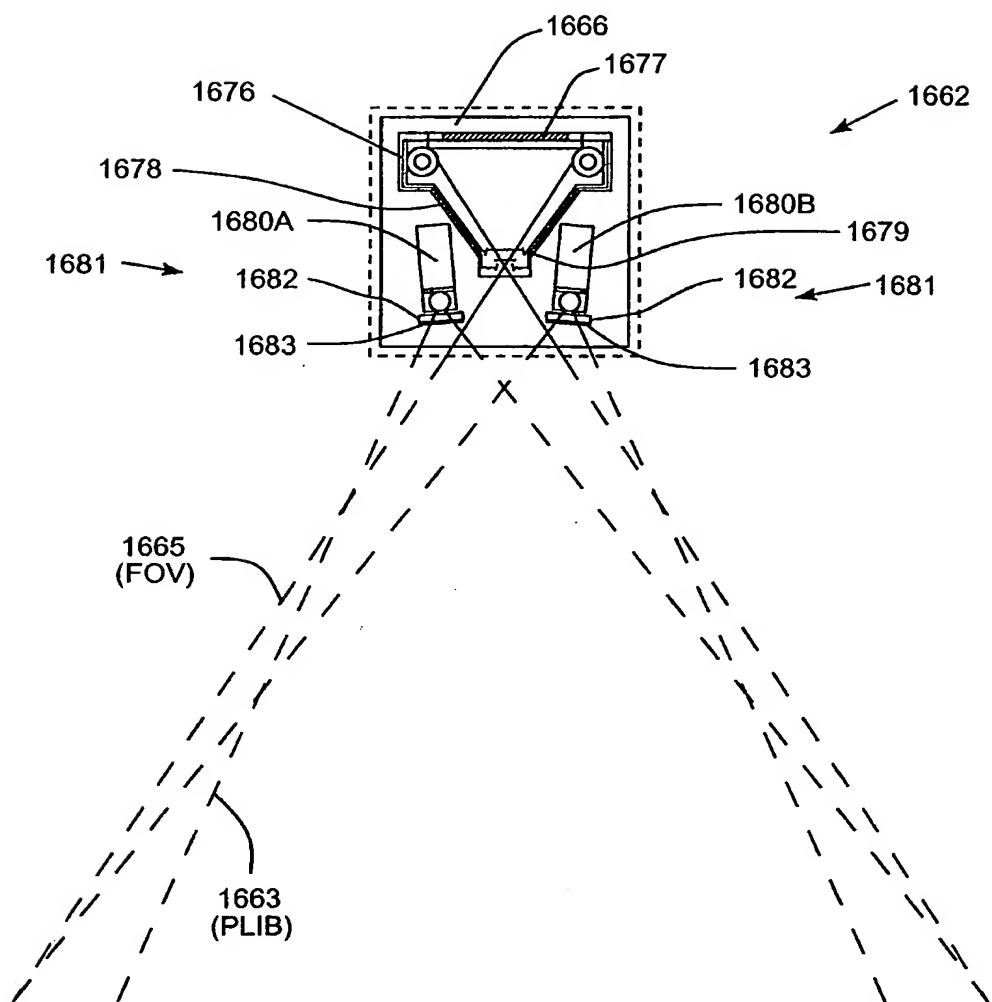


FIG. 46C

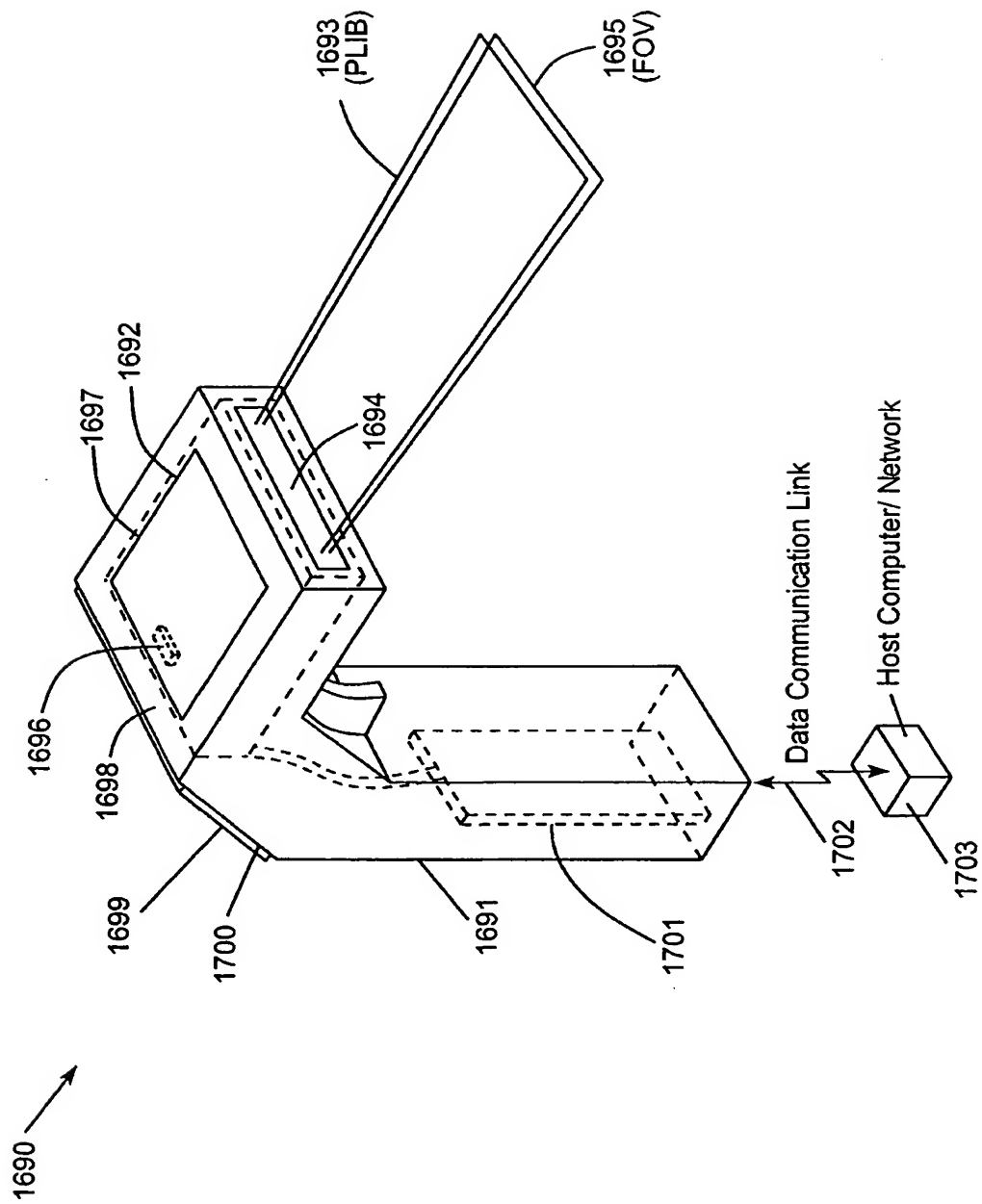


FIG. 47A

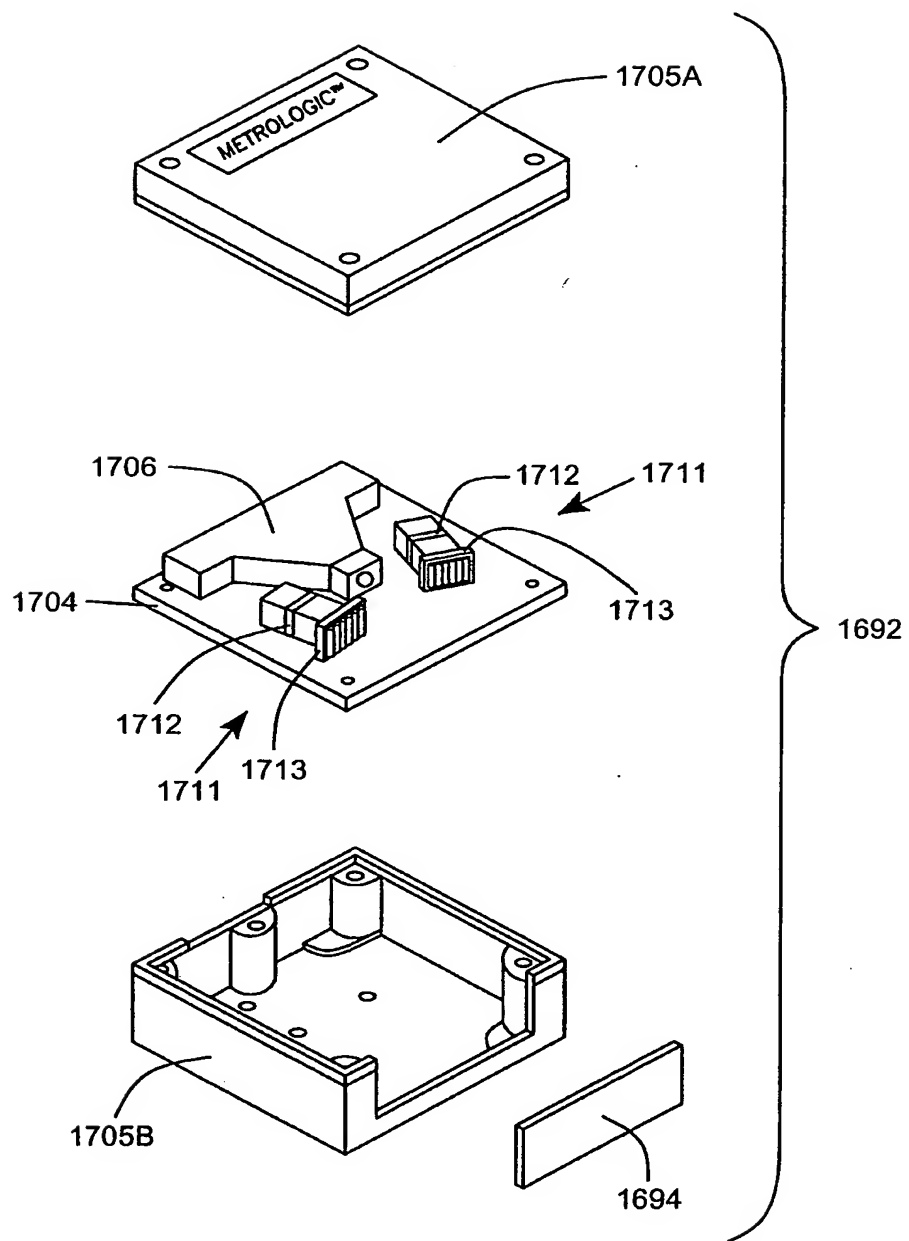


FIG. 47B

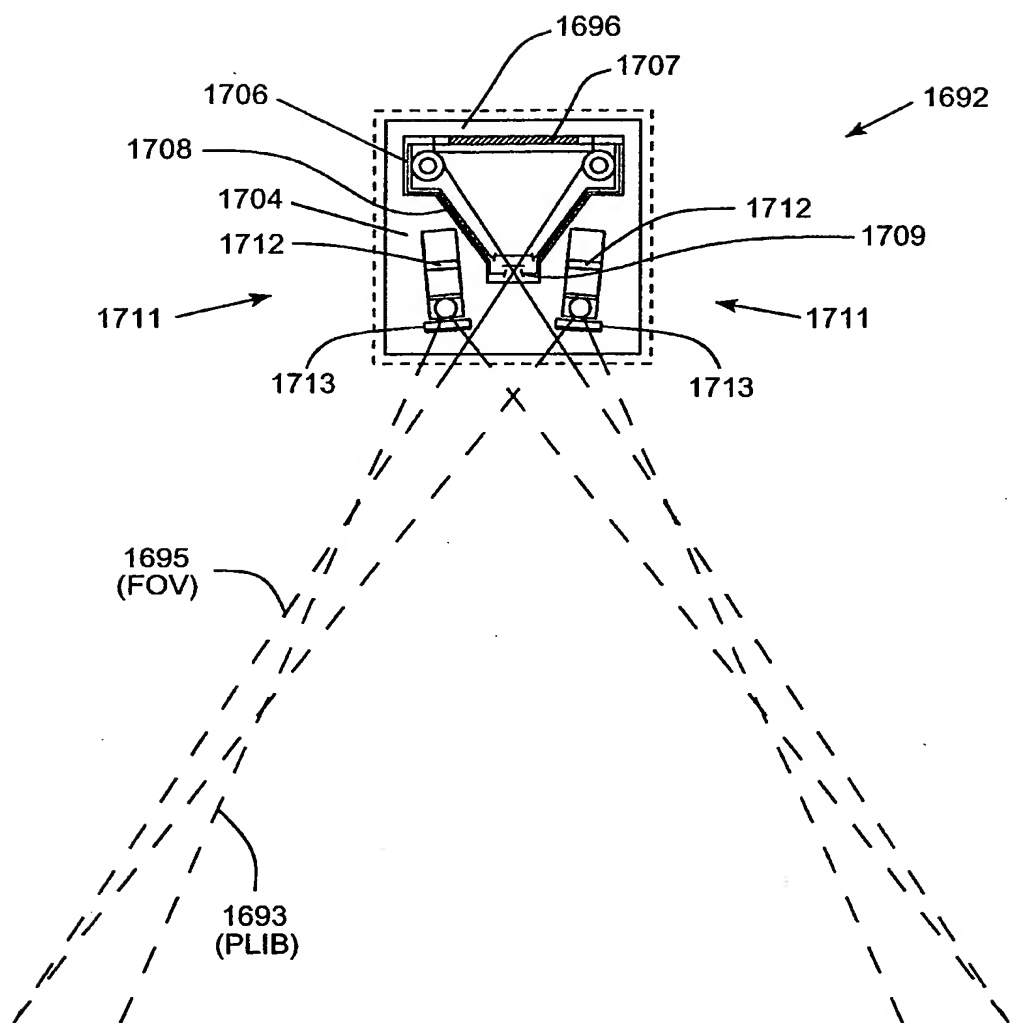


FIG. 47C

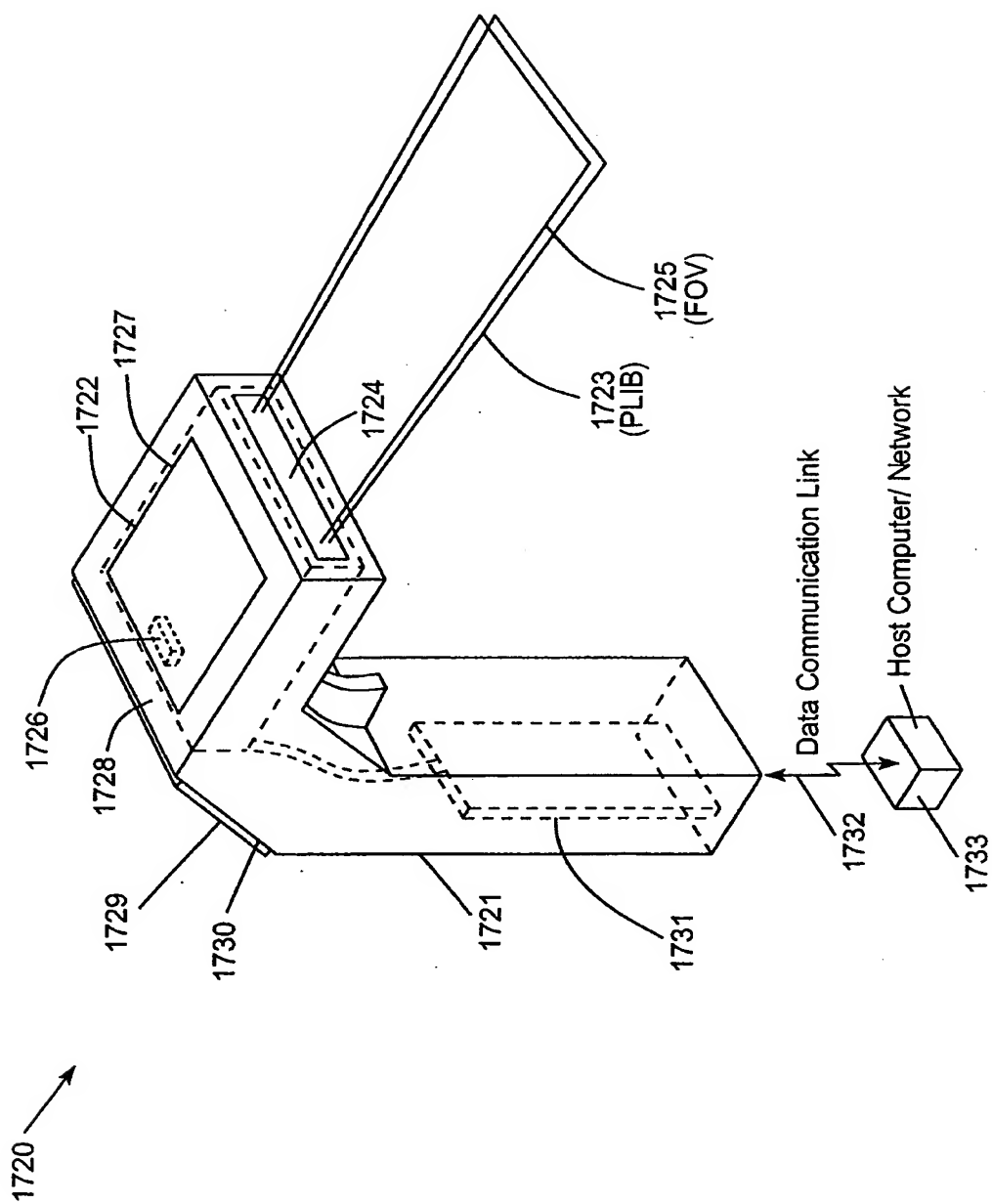


FIG. 48A

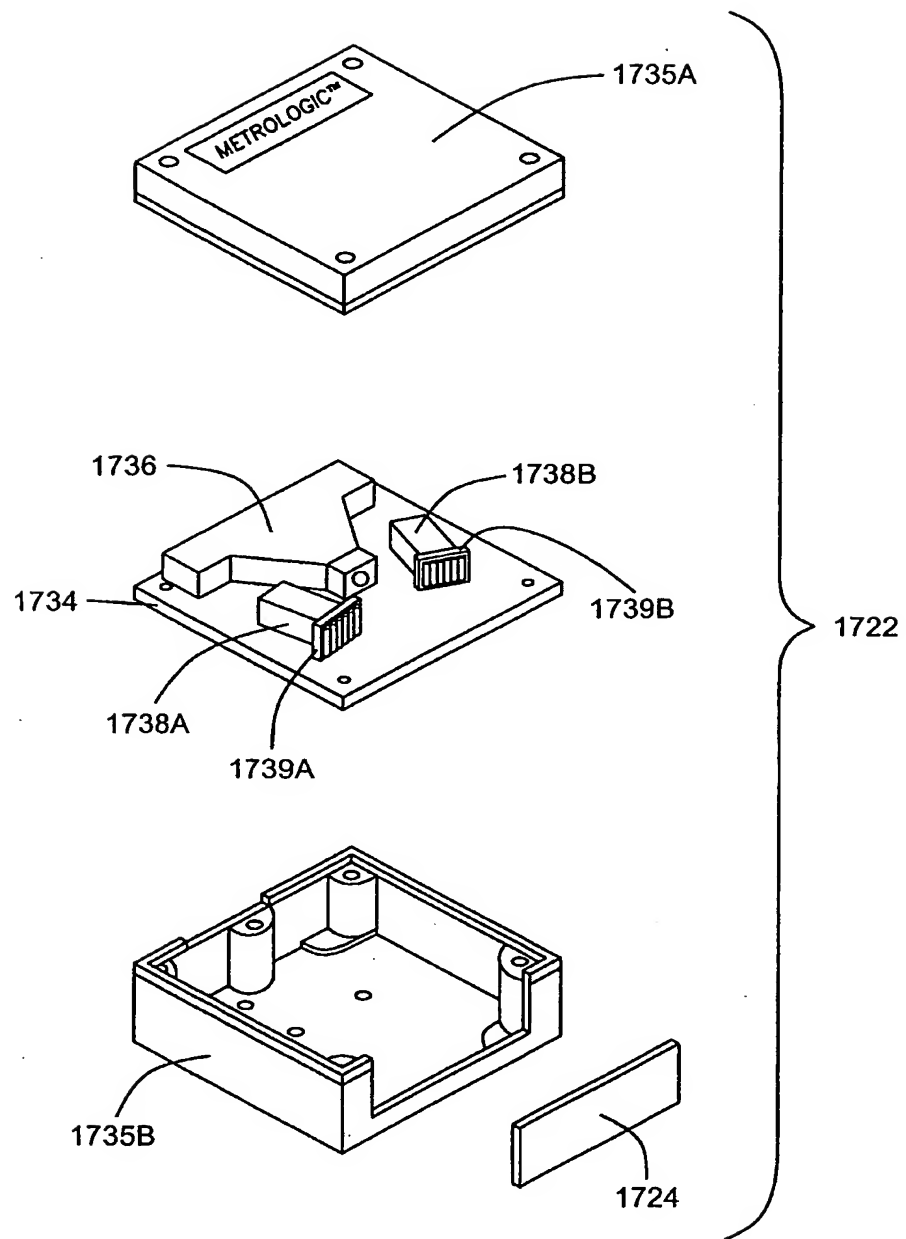


FIG. 48B

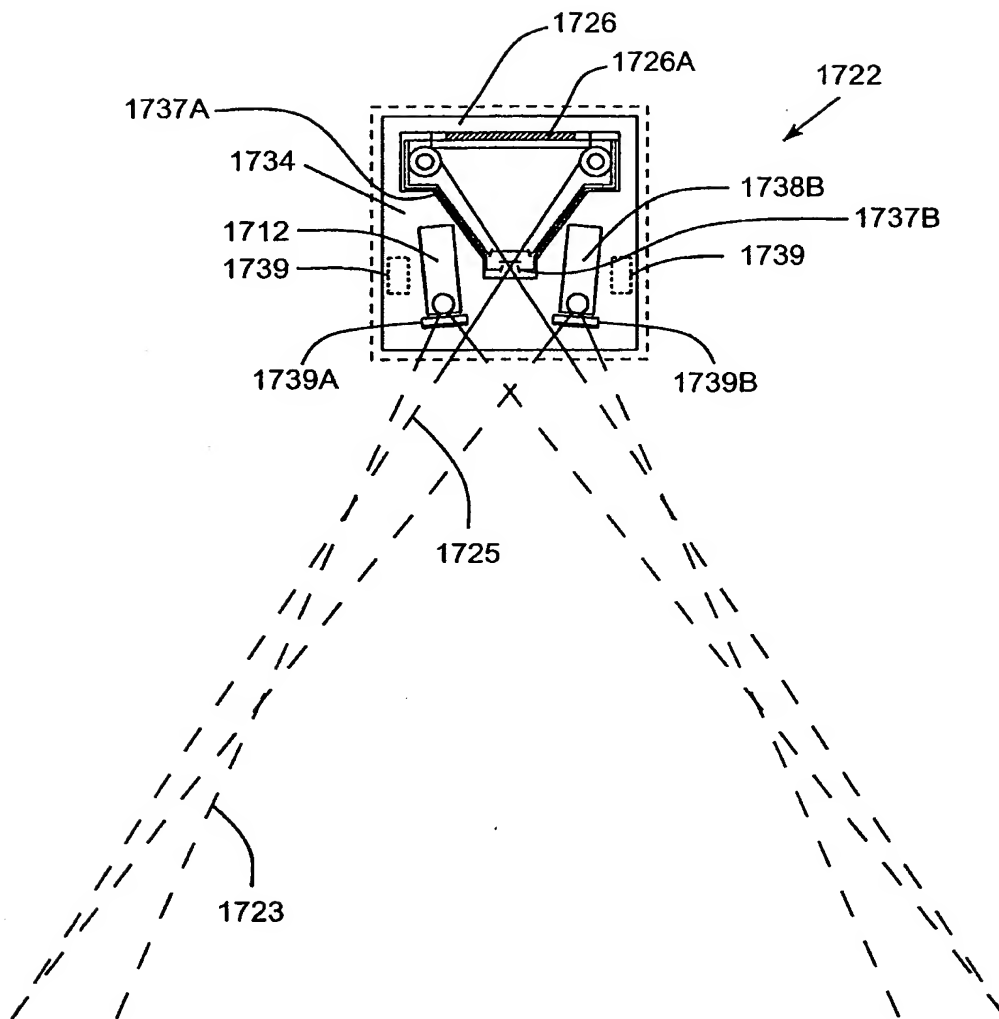


FIG. 48C

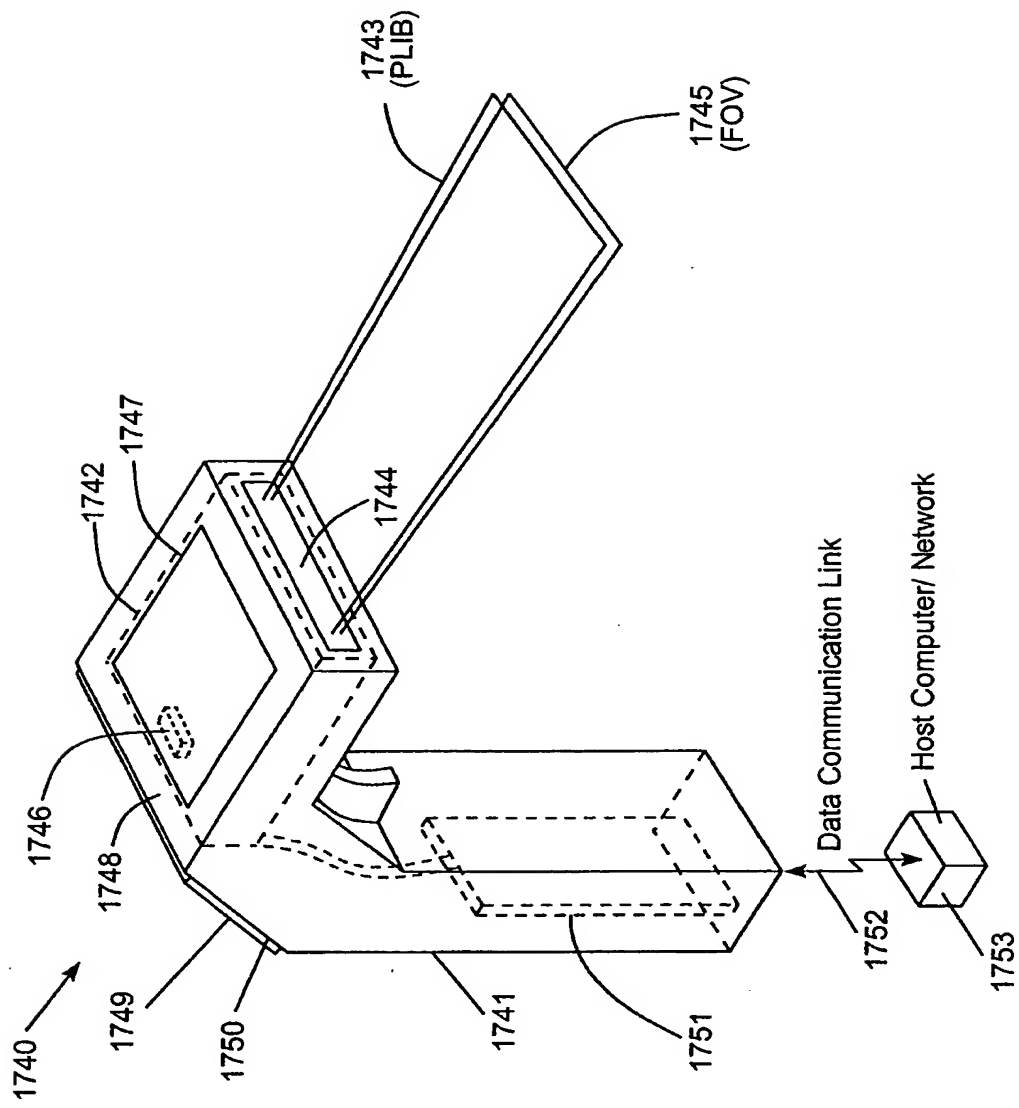


FIG. 49A

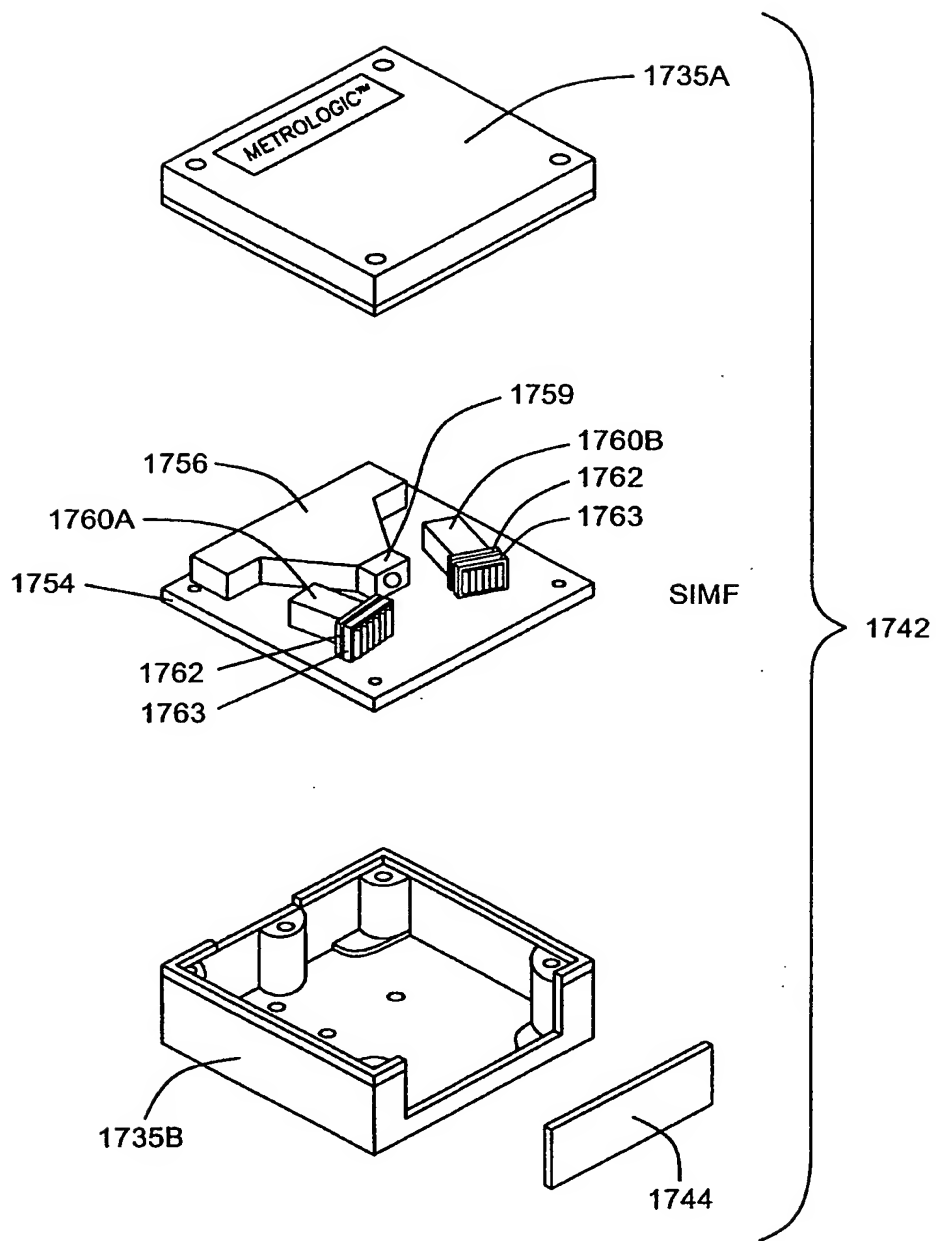


FIG. 49B

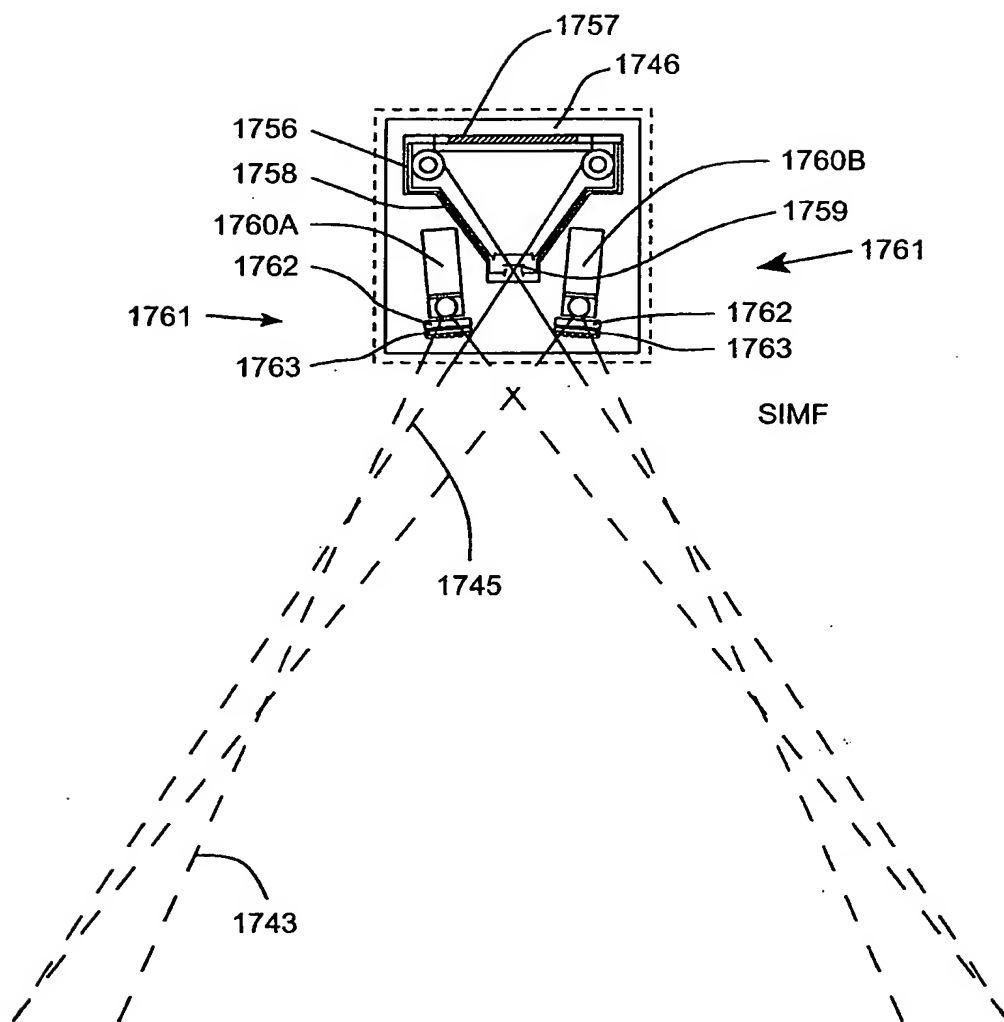


FIG. 49C

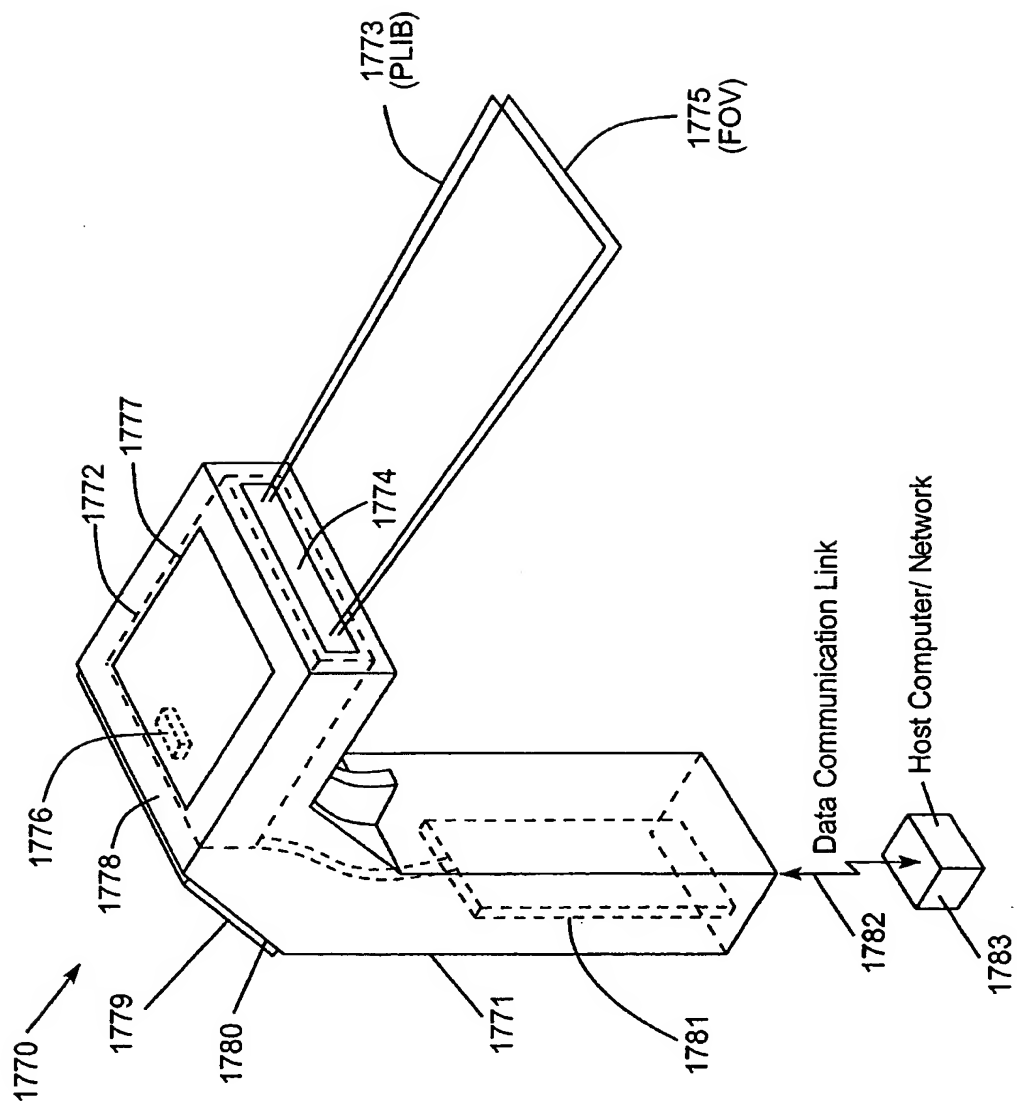


FIG. 50A

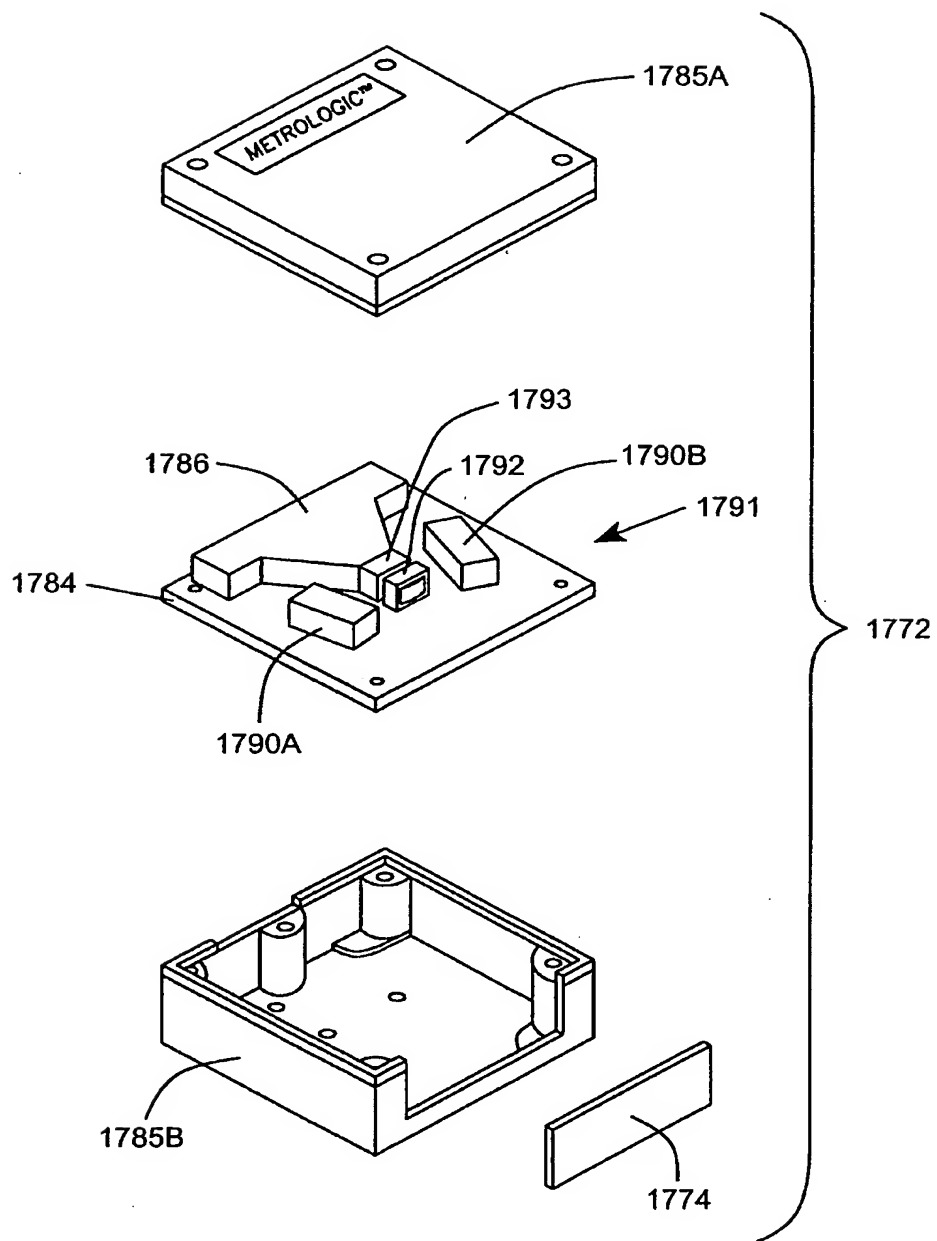


FIG. 50B

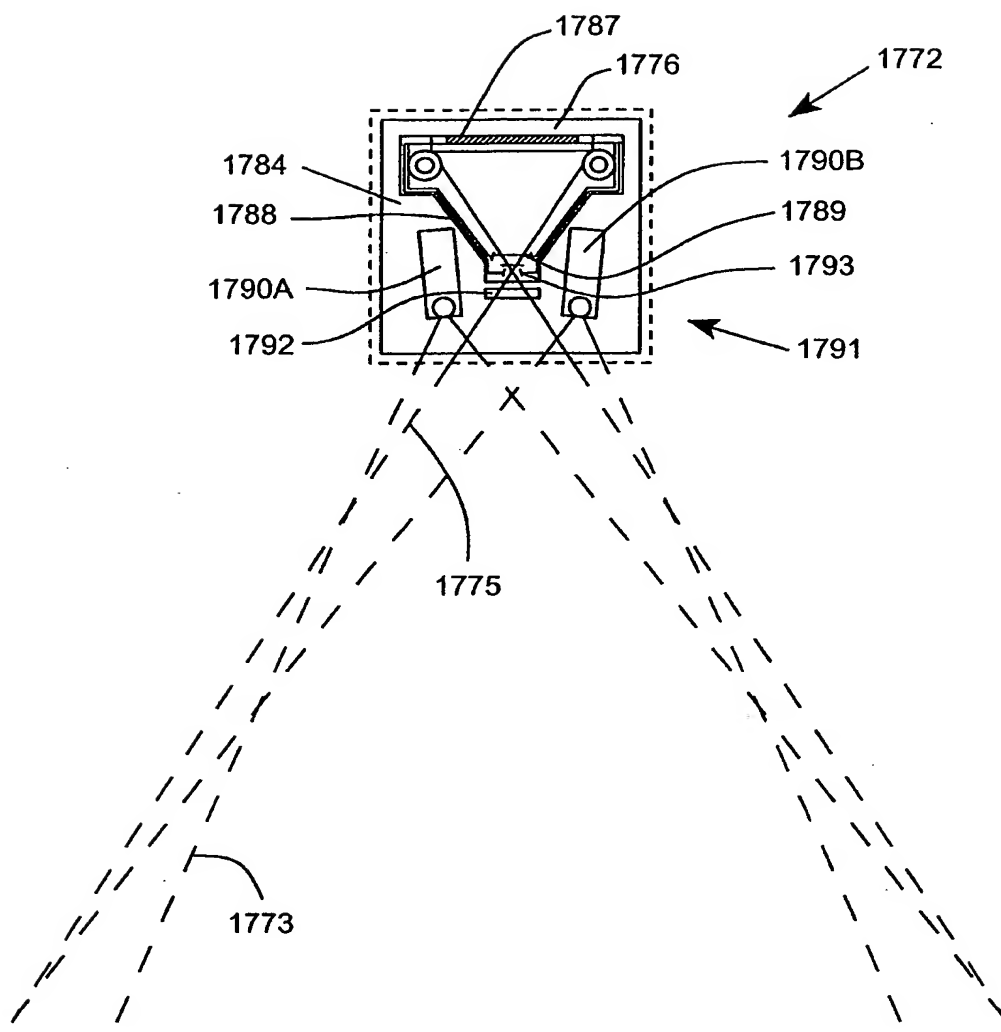


FIG. 50C

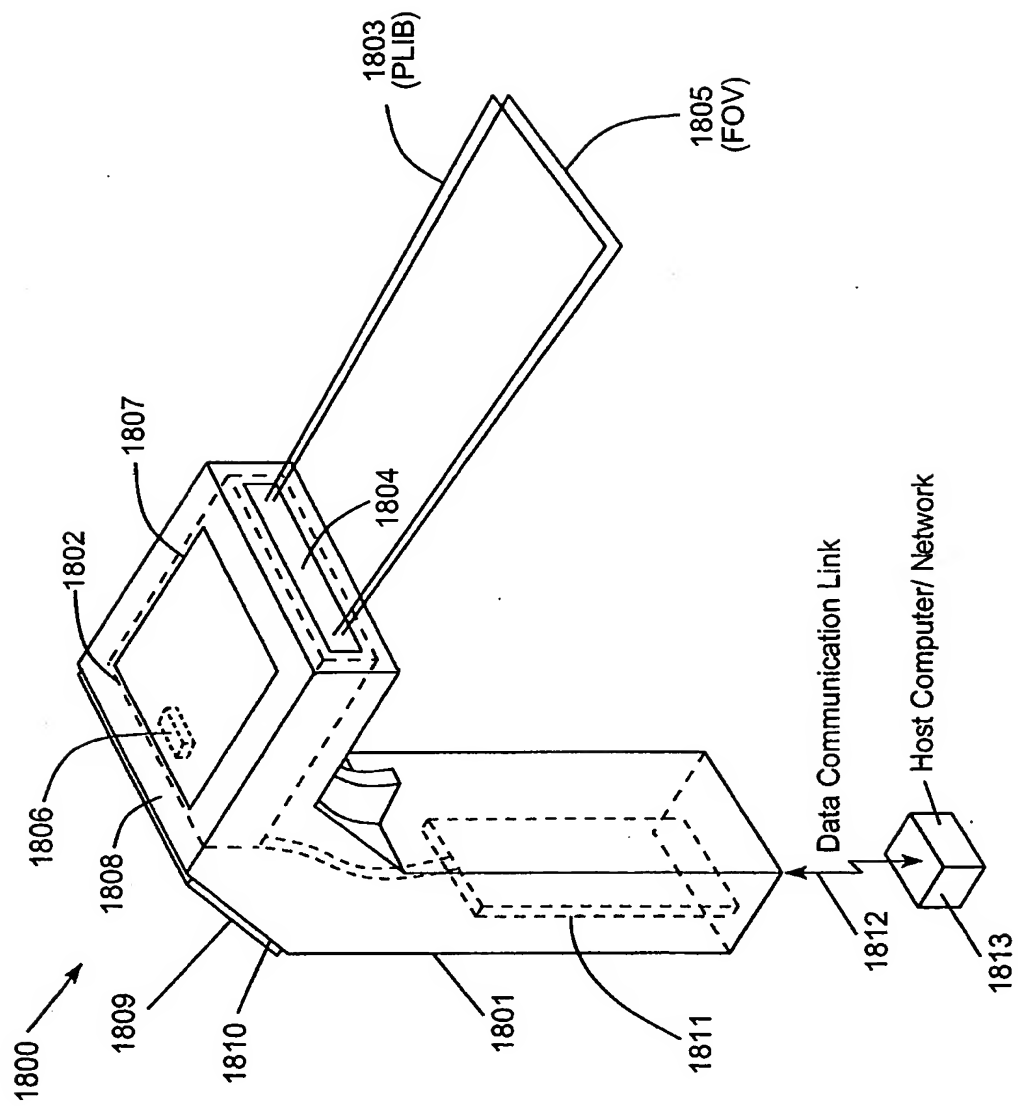


FIG. 51A

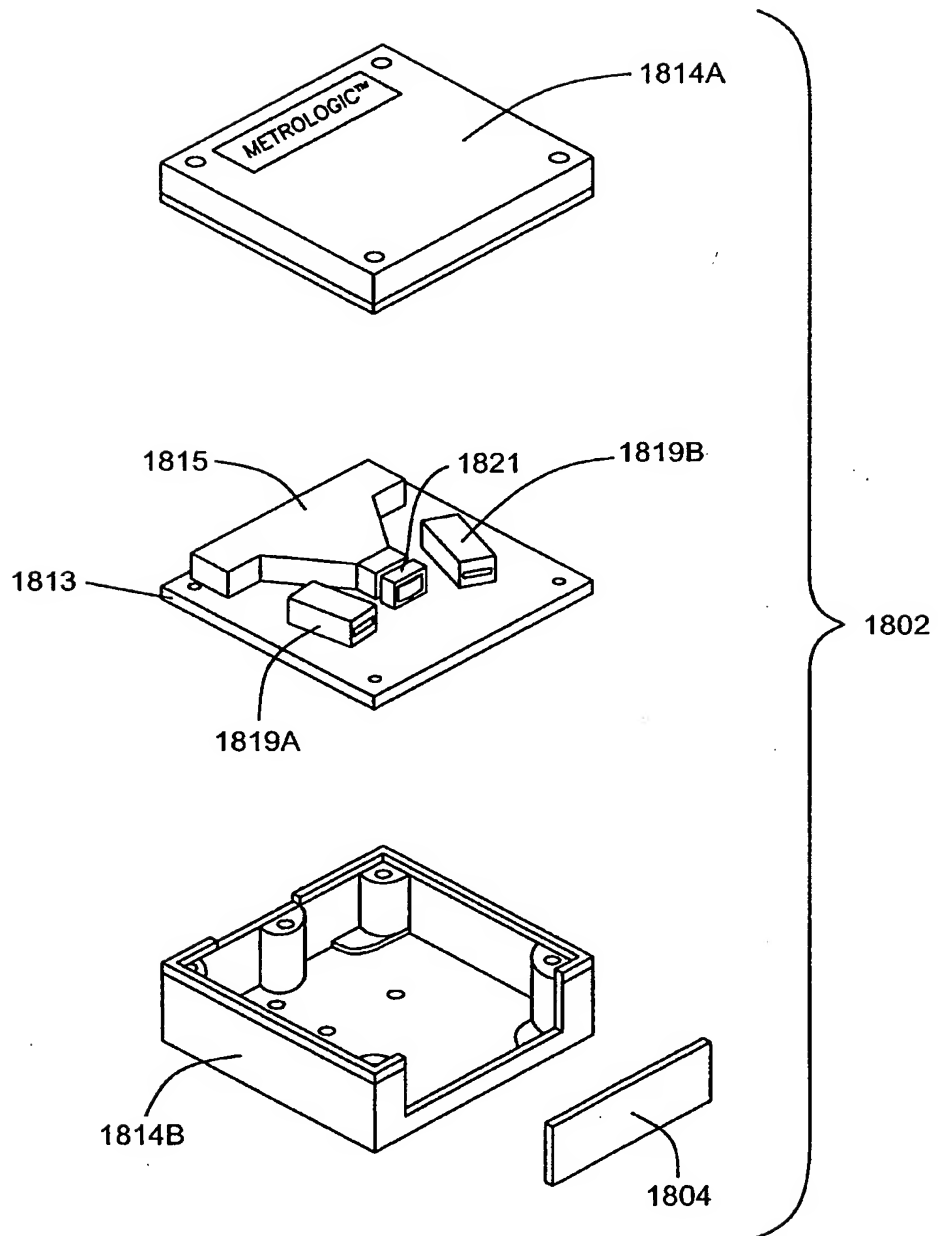


FIG. 51B

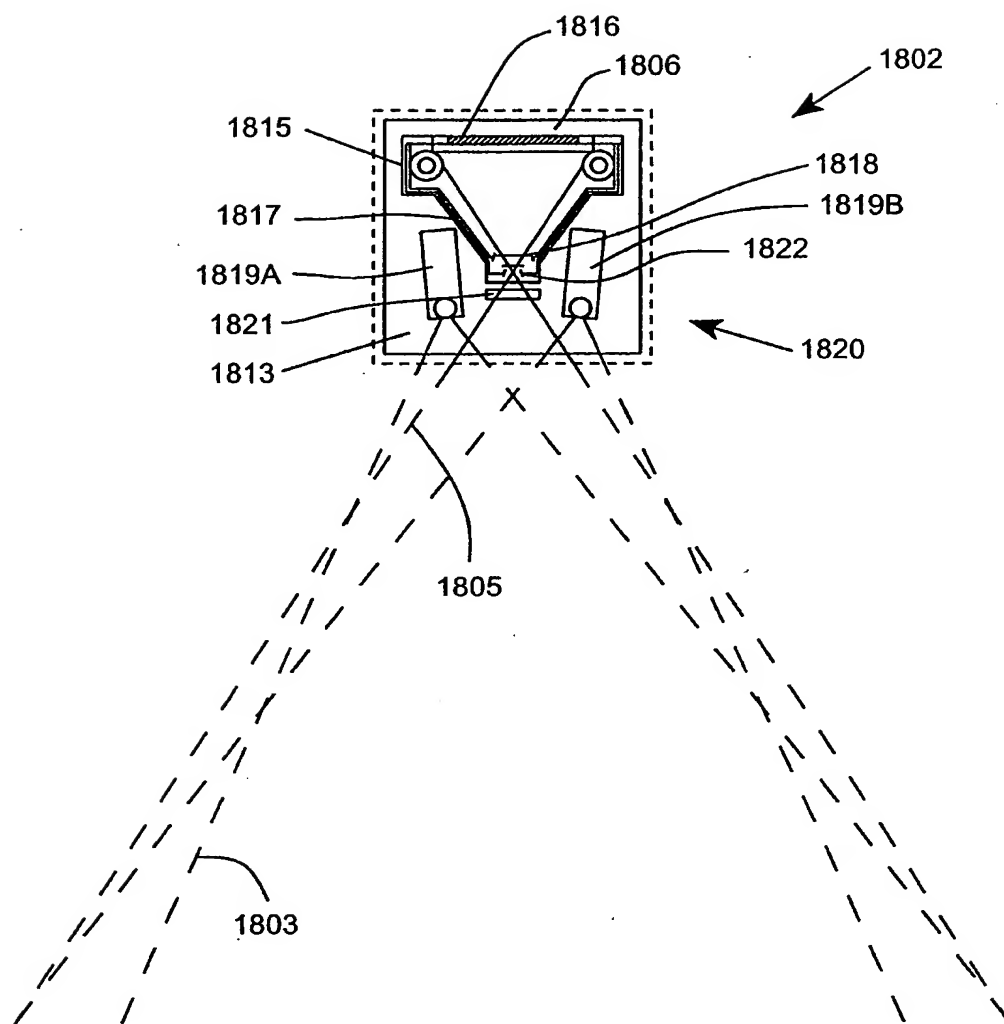


FIG. 51C

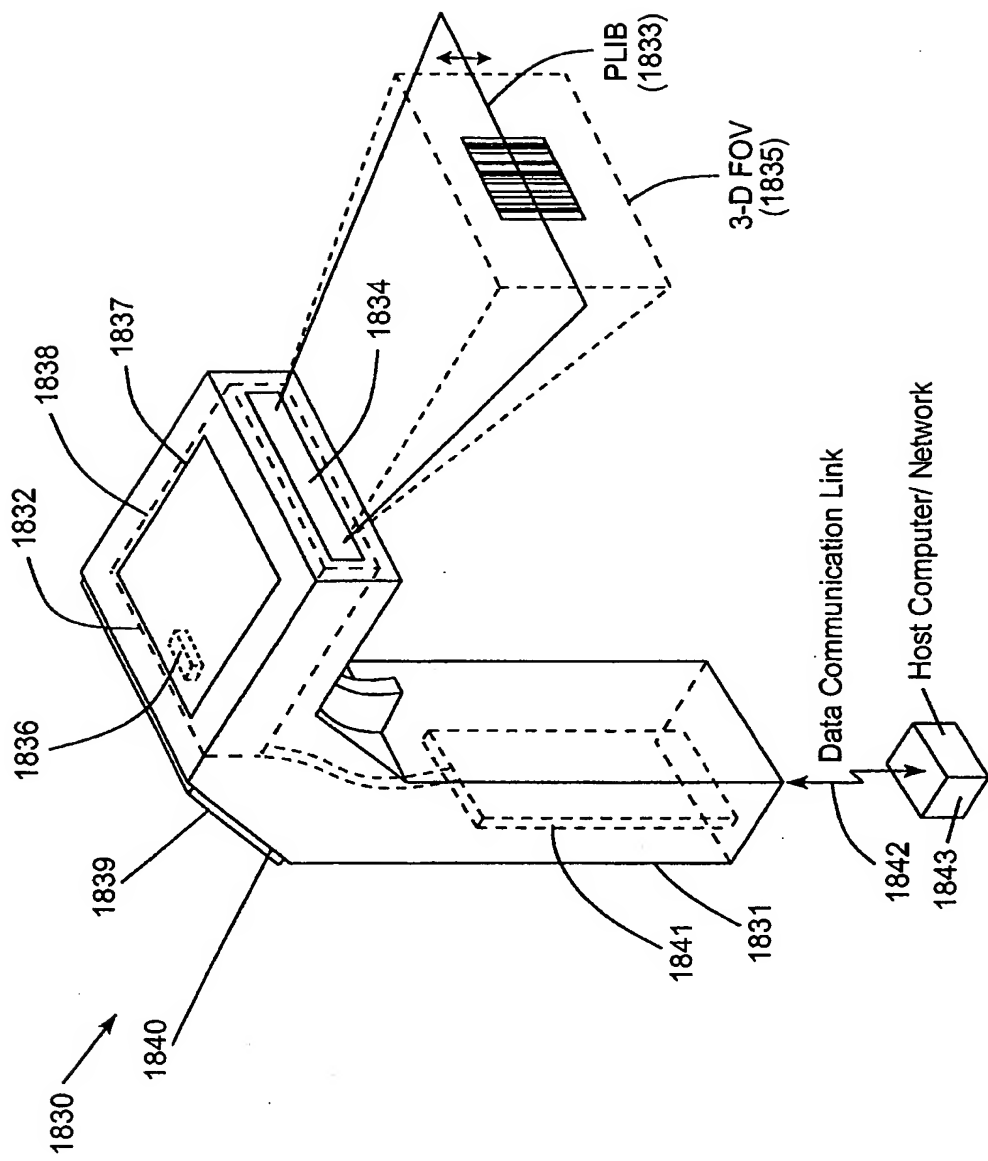


FIG. 52A

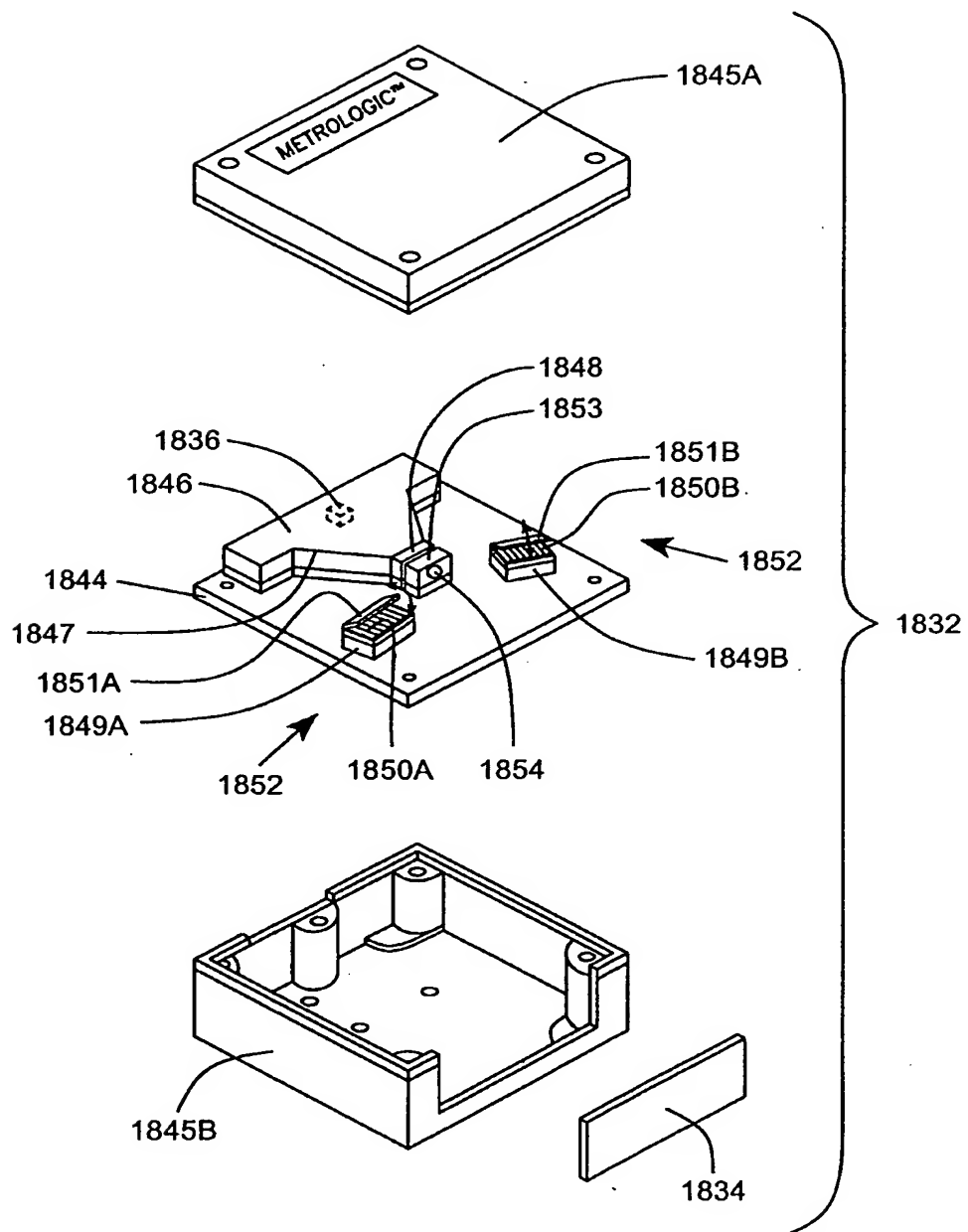


Fig. 113A-3B

FIG. 52B

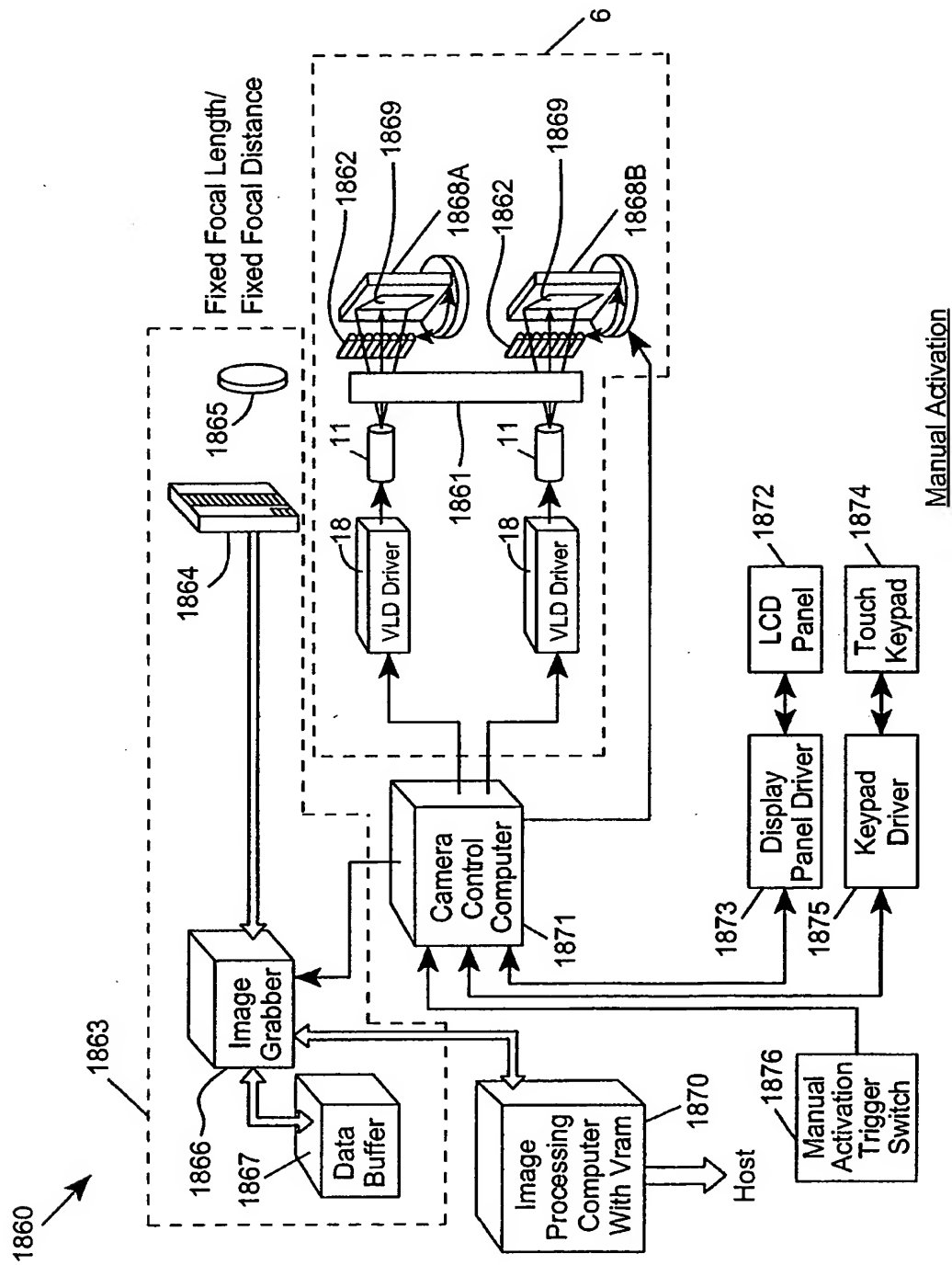


FIG. 53A1

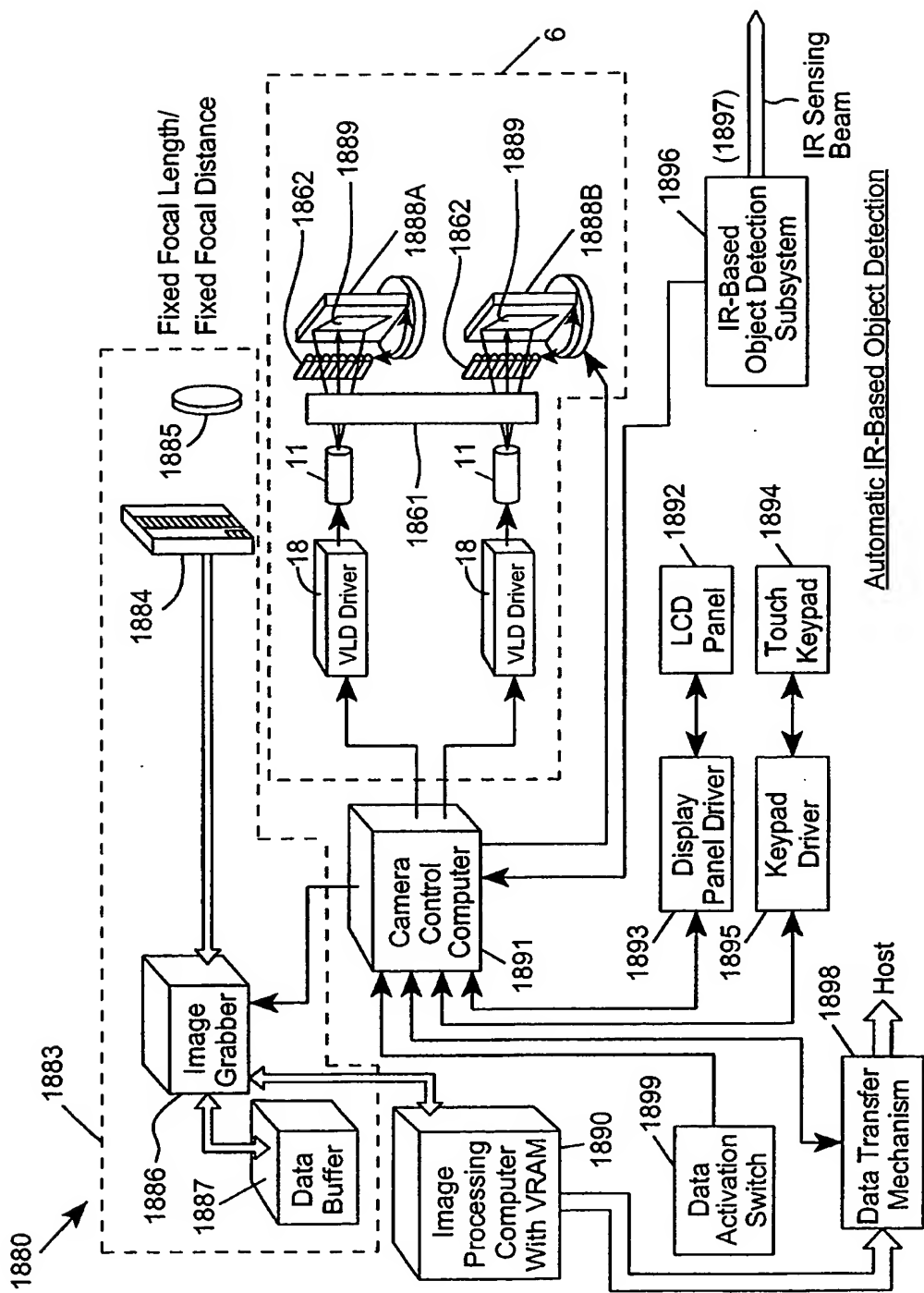


FIG. 53A2

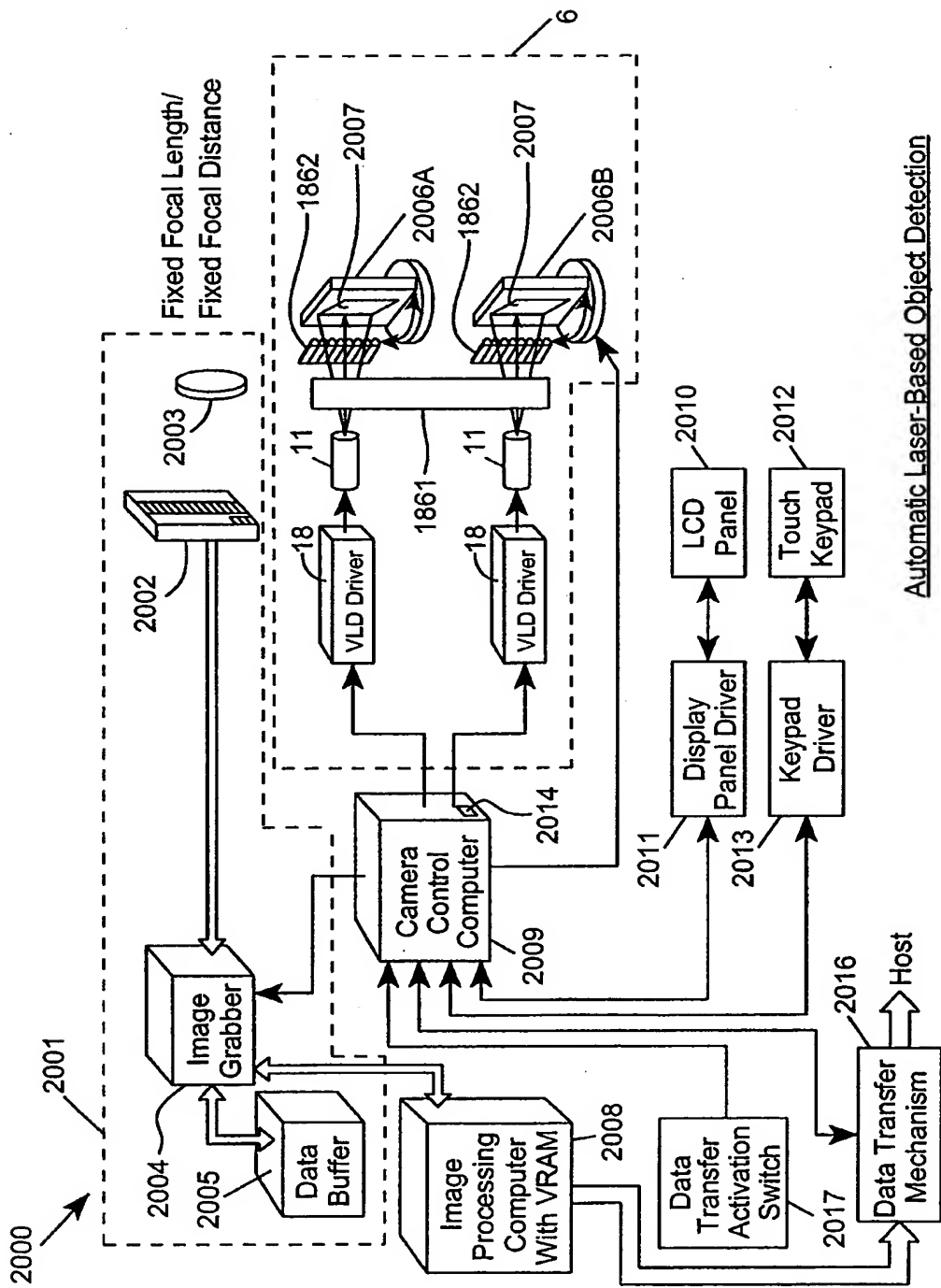


FIG. 53A3

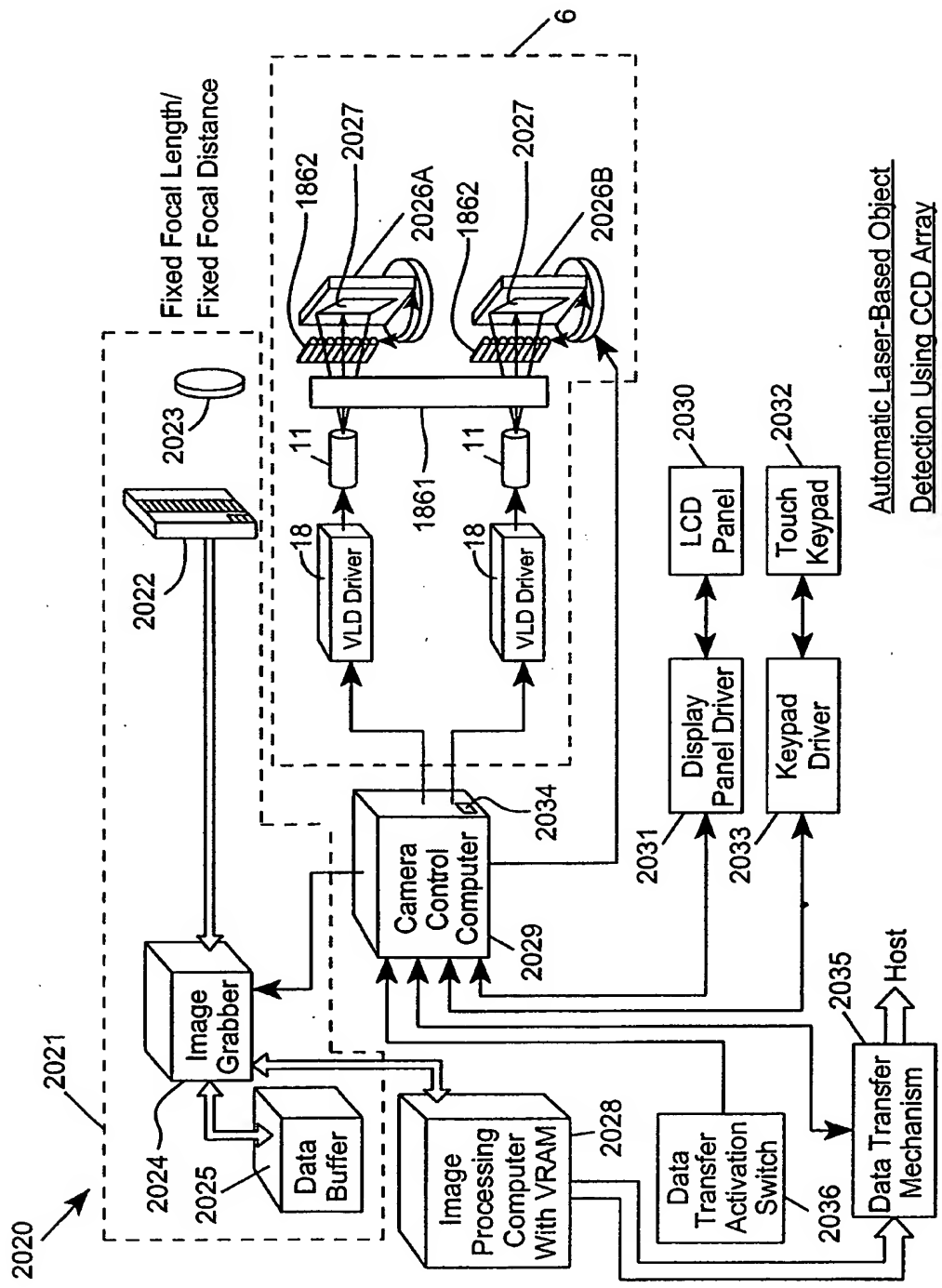


FIG. 53A4

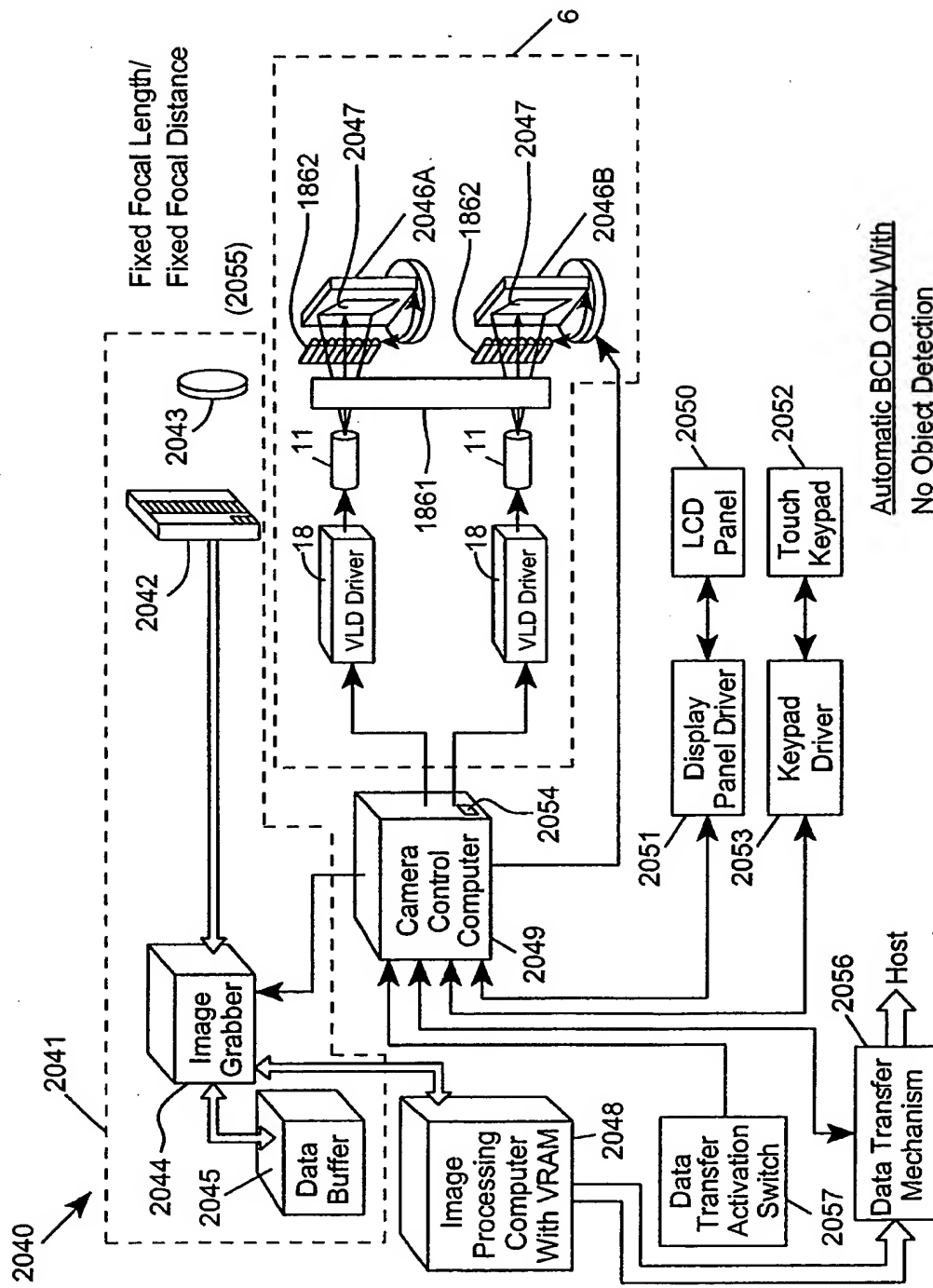
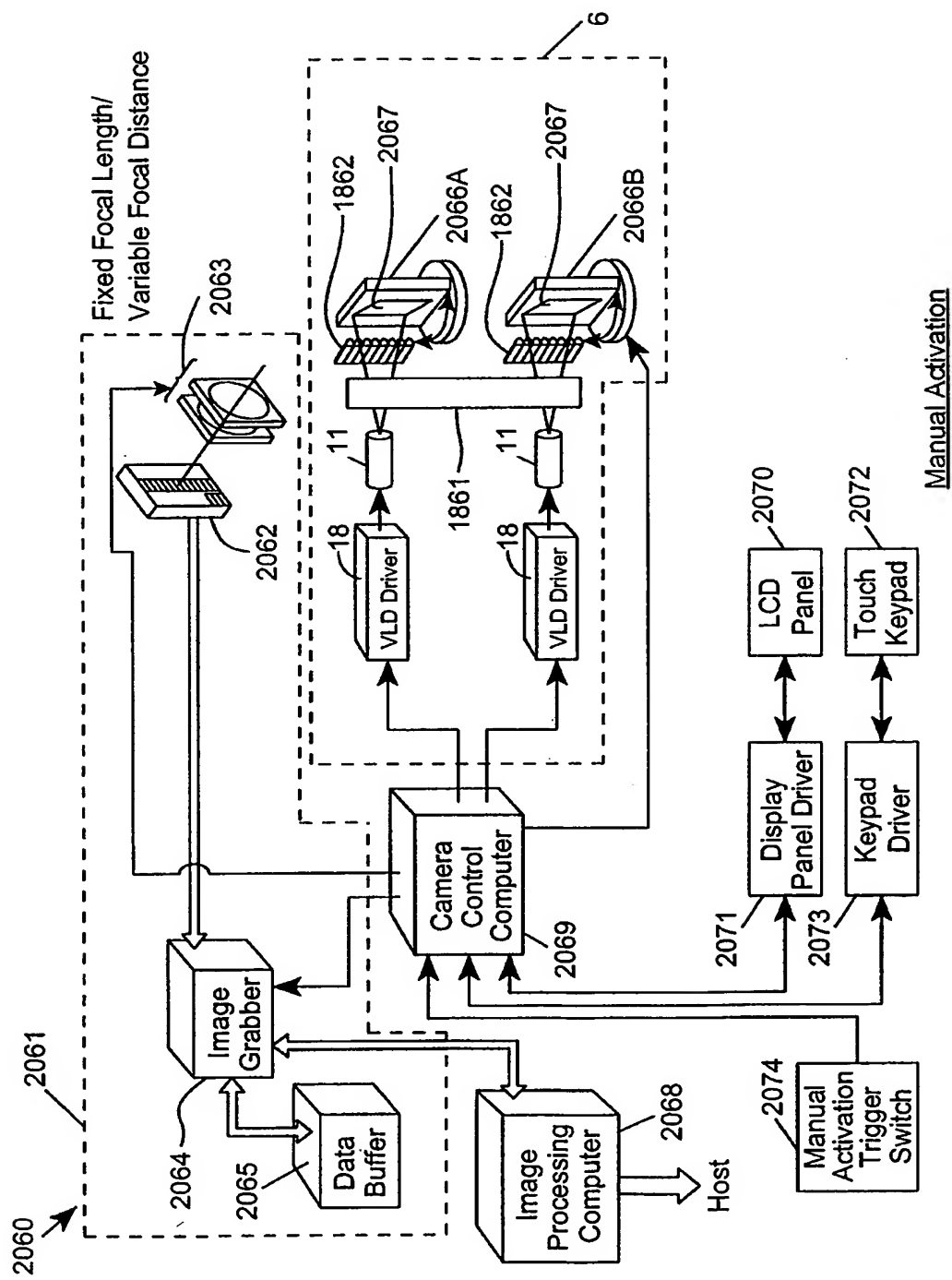
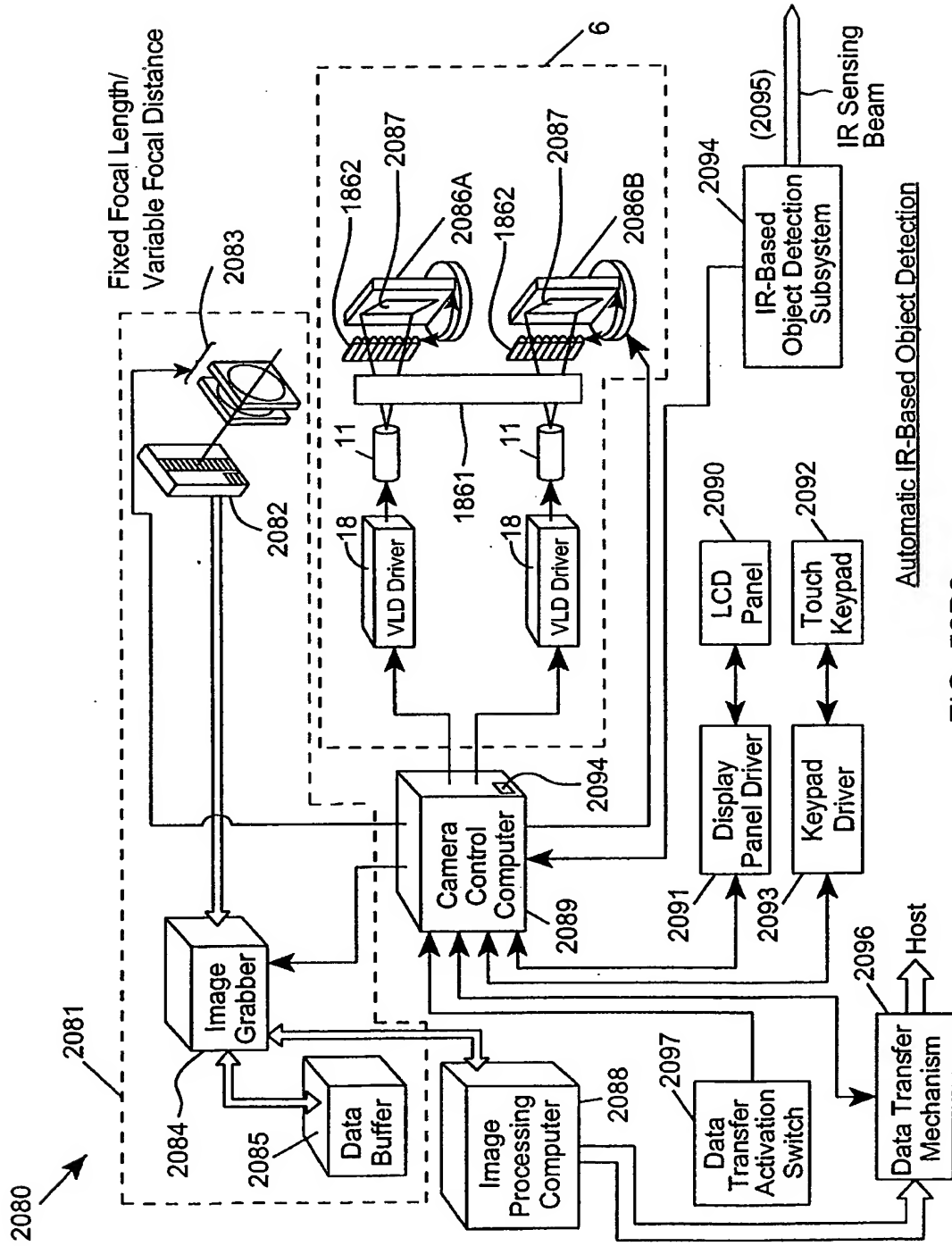


FIG. 53A5





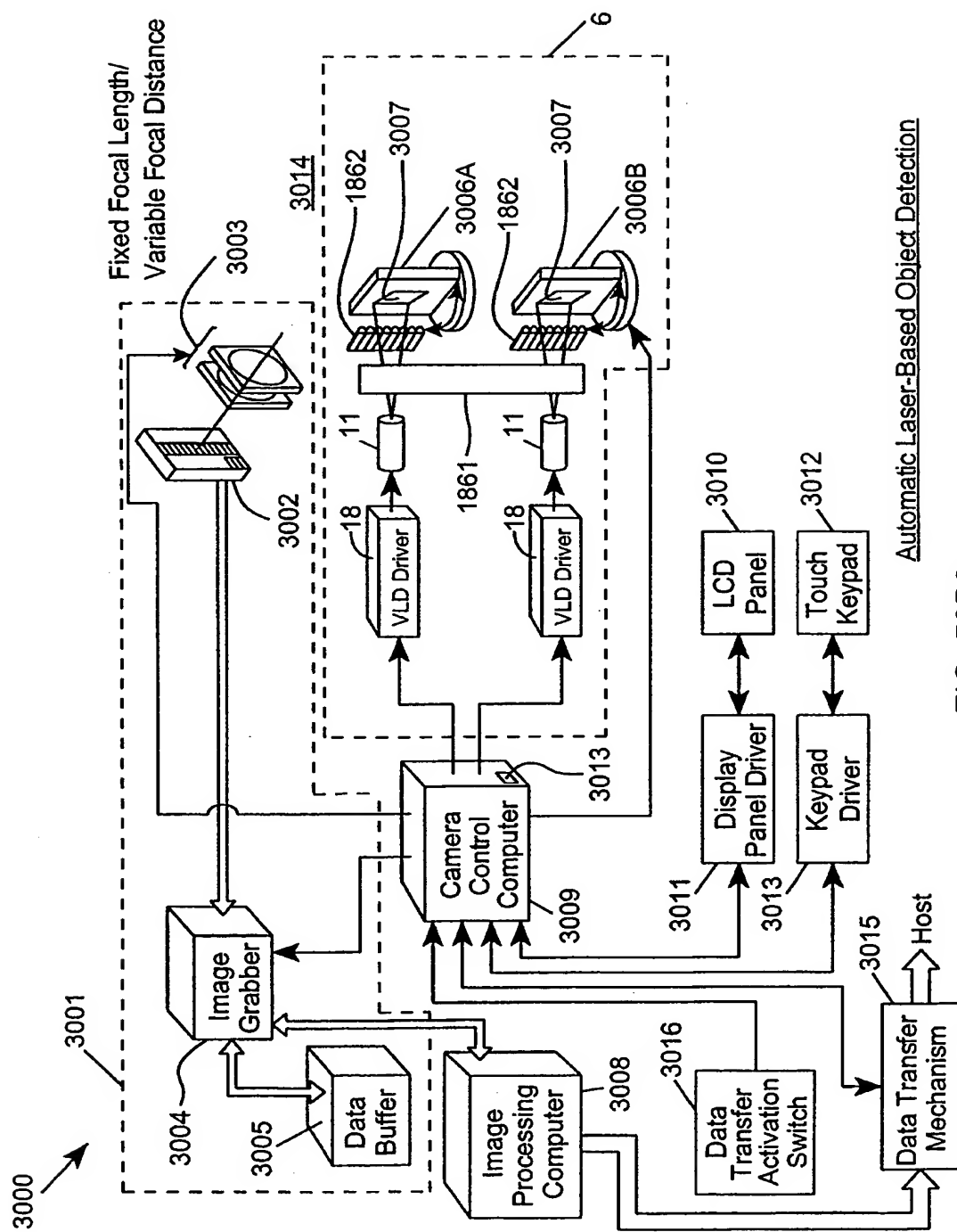
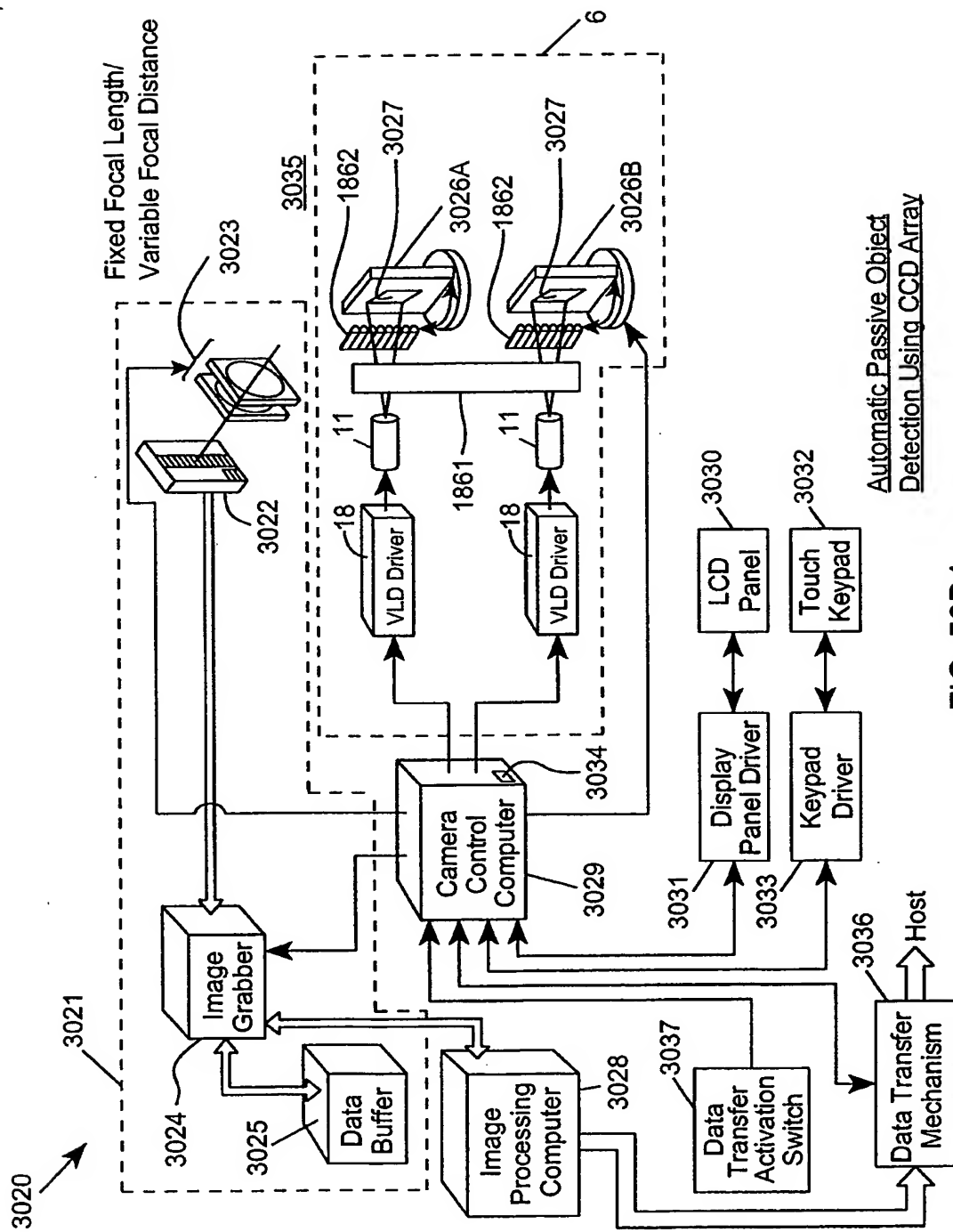
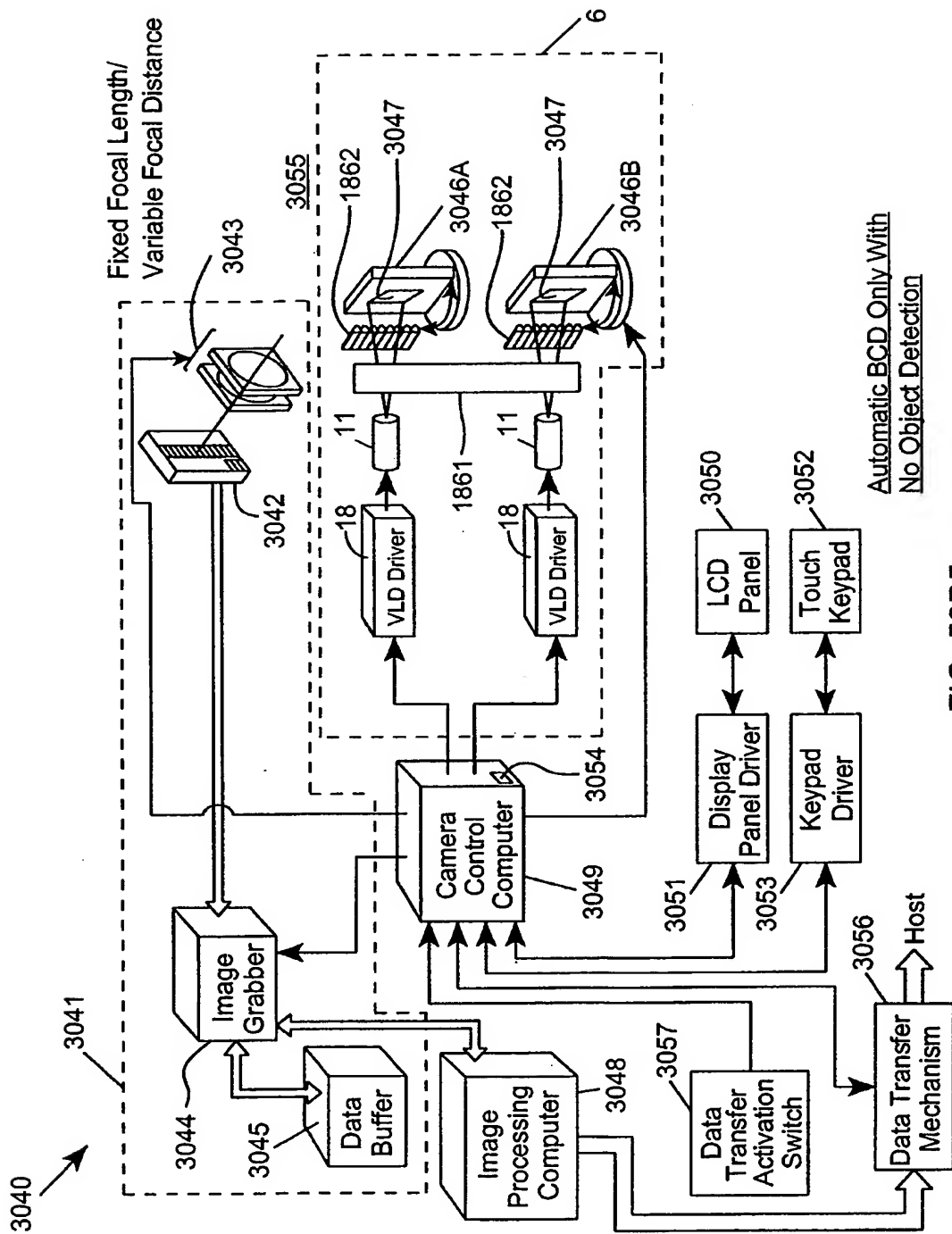
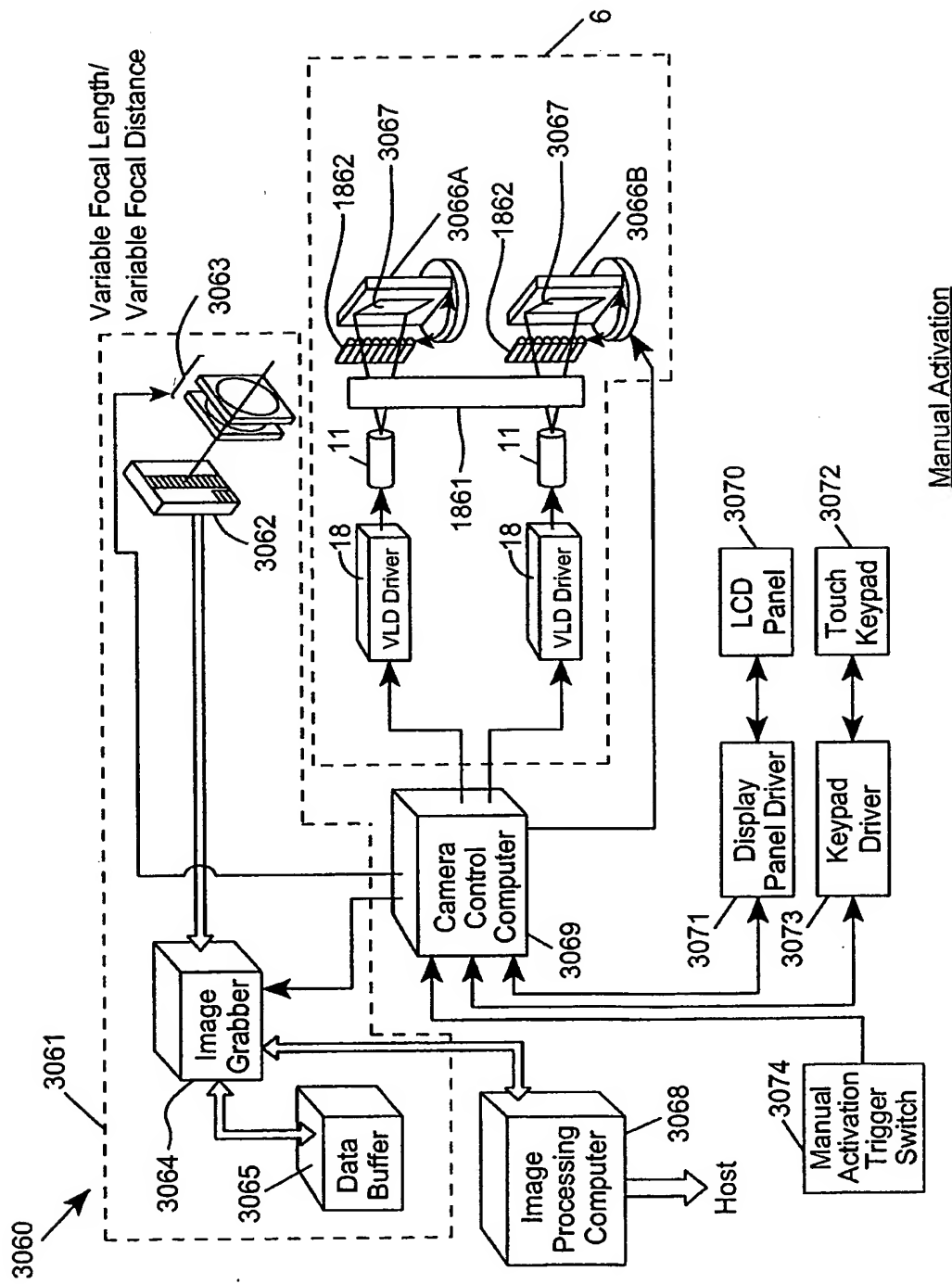


FIG. 53B3







Manual Activation

FIG. 53C1

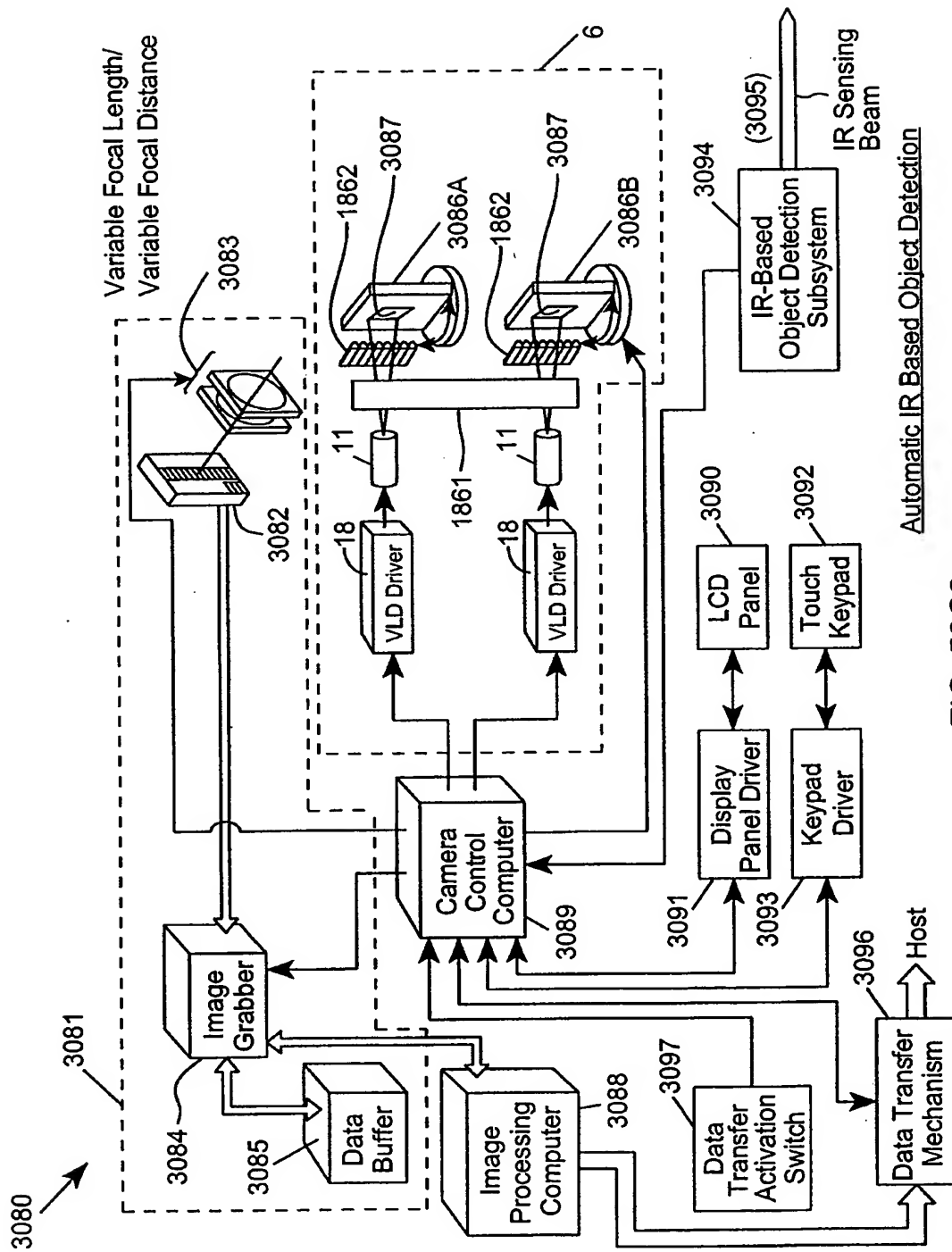
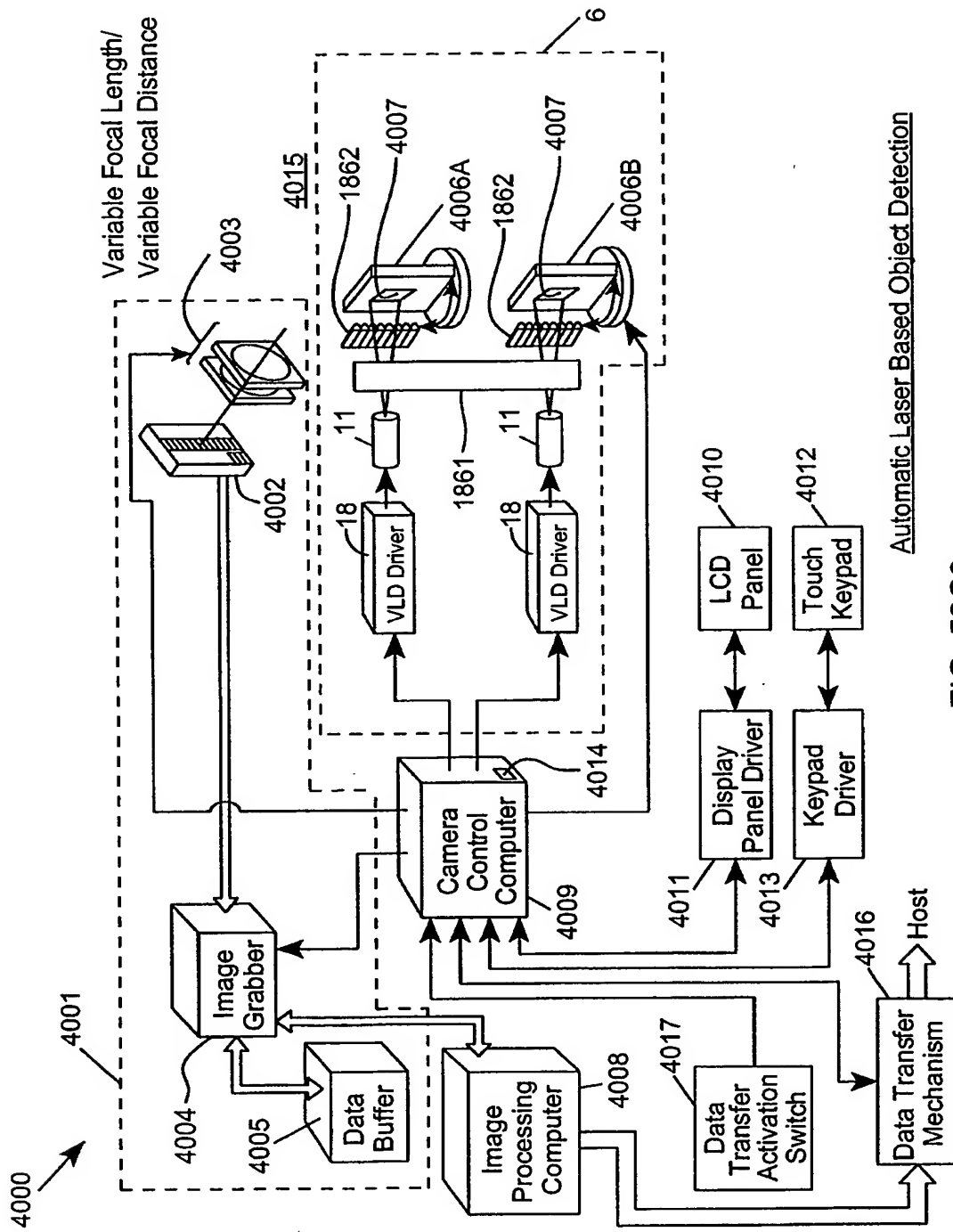


FIG. 53C2



Automatic Laser Based Object Detection

FIG. 53C3

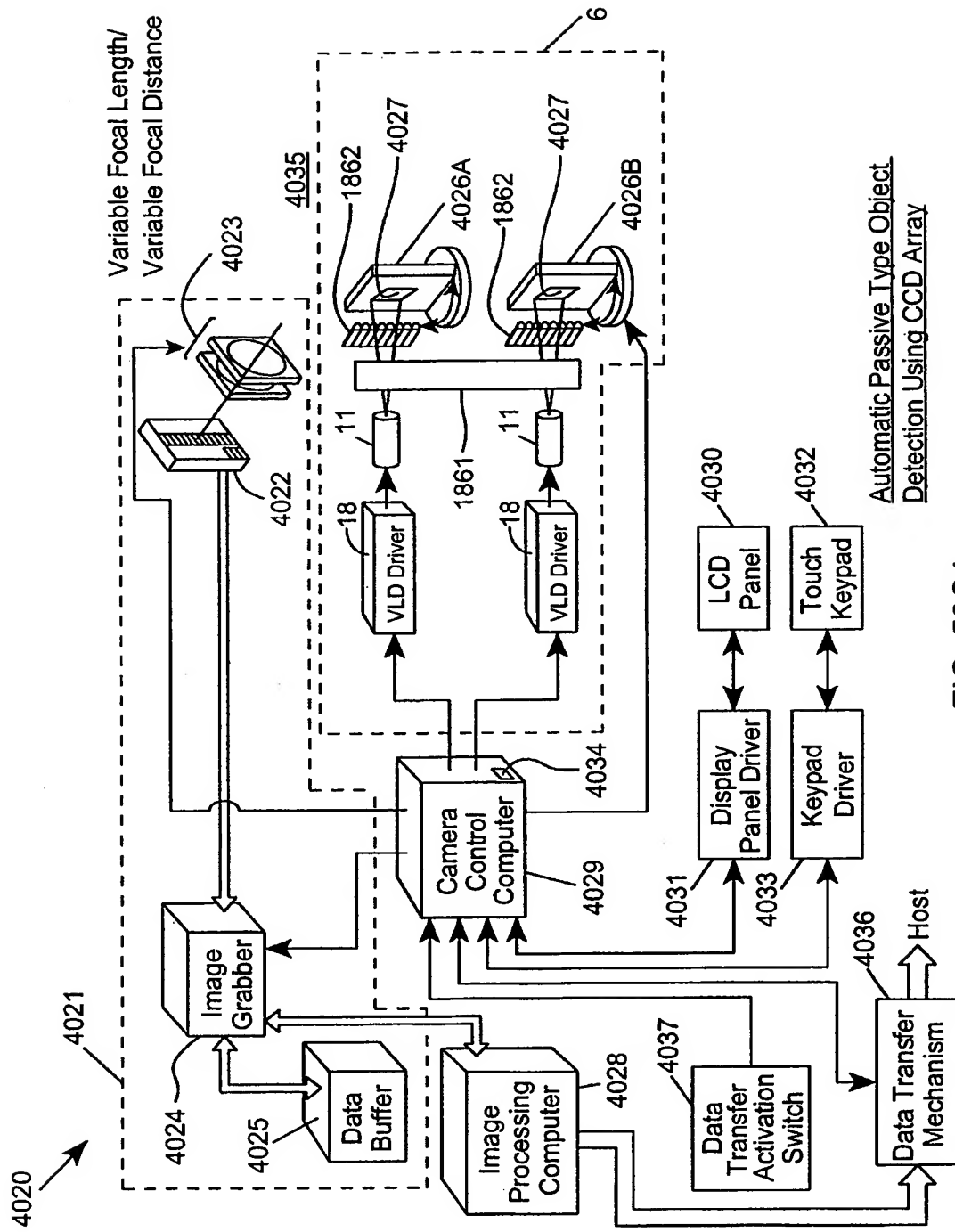
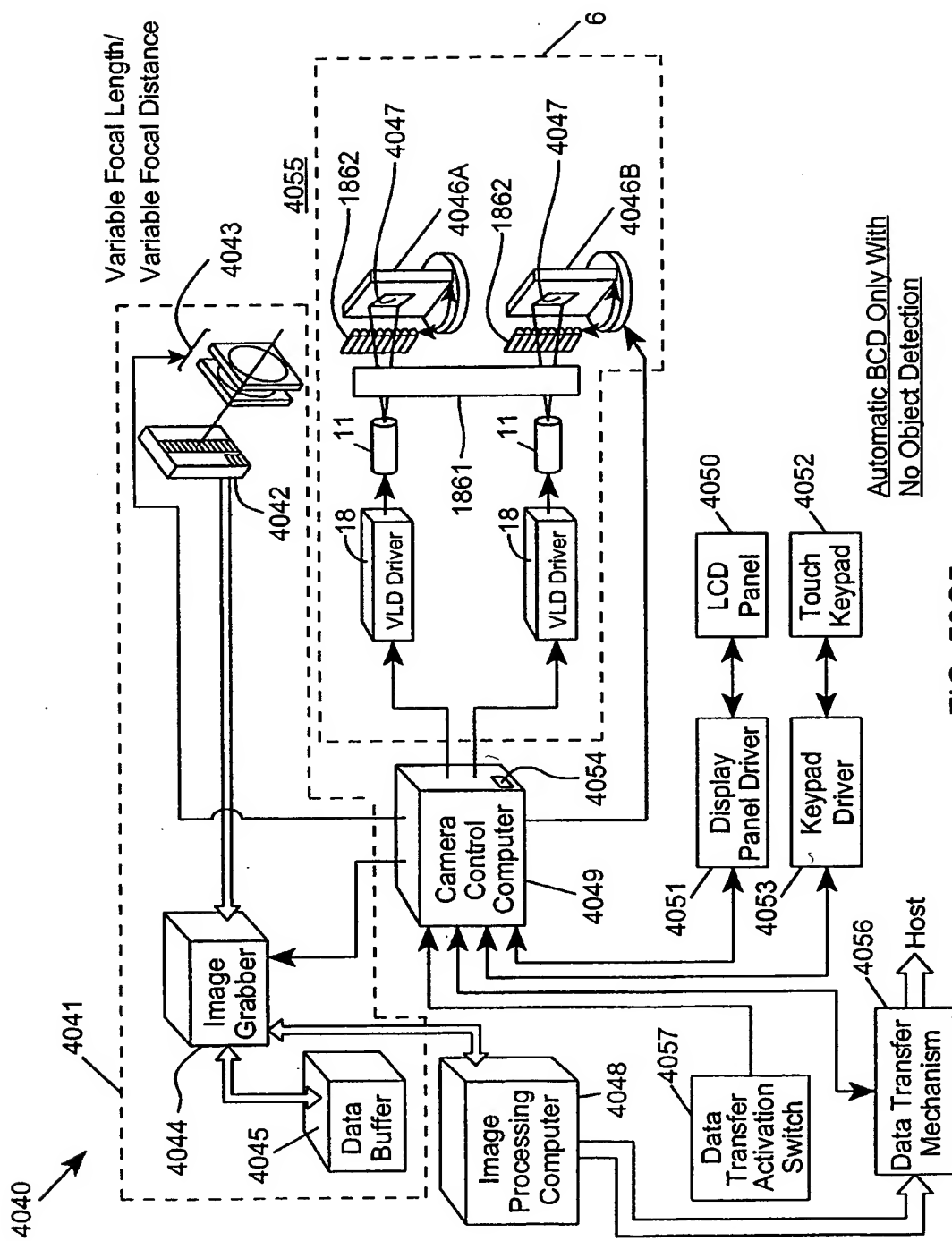


FIG. 53C4



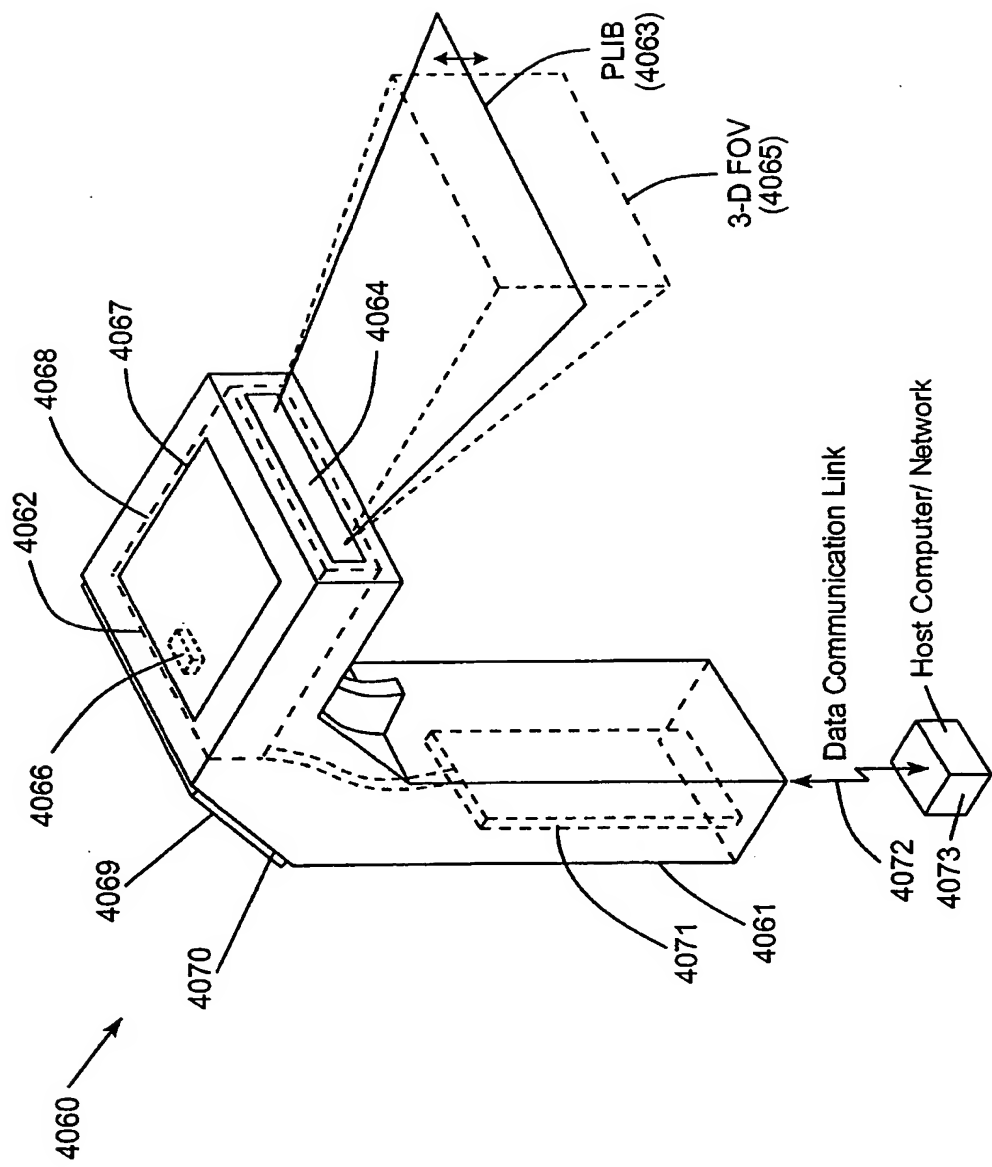
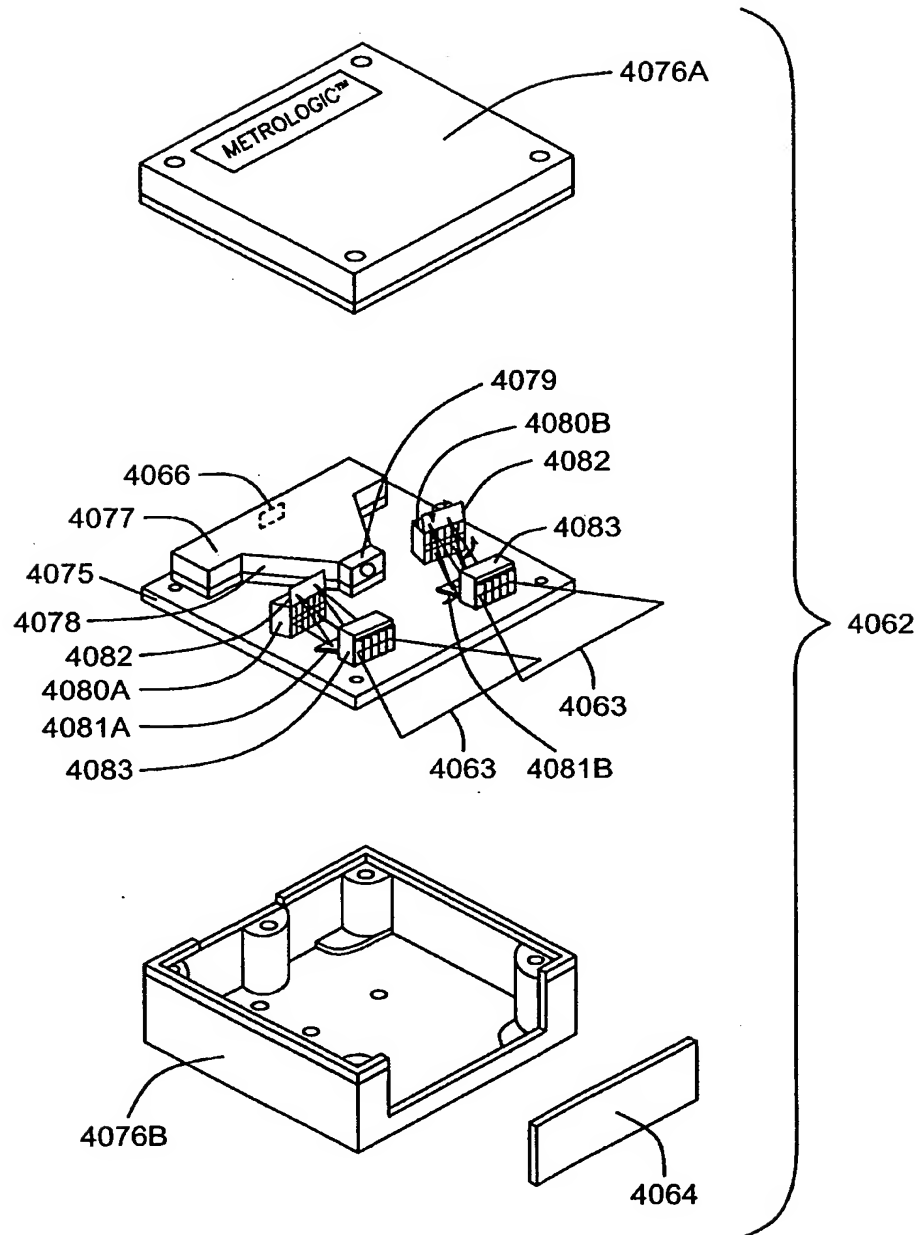


FIG. 54A



(Dual Mirrors)
Fig. 115A-5D

FIG. 54B

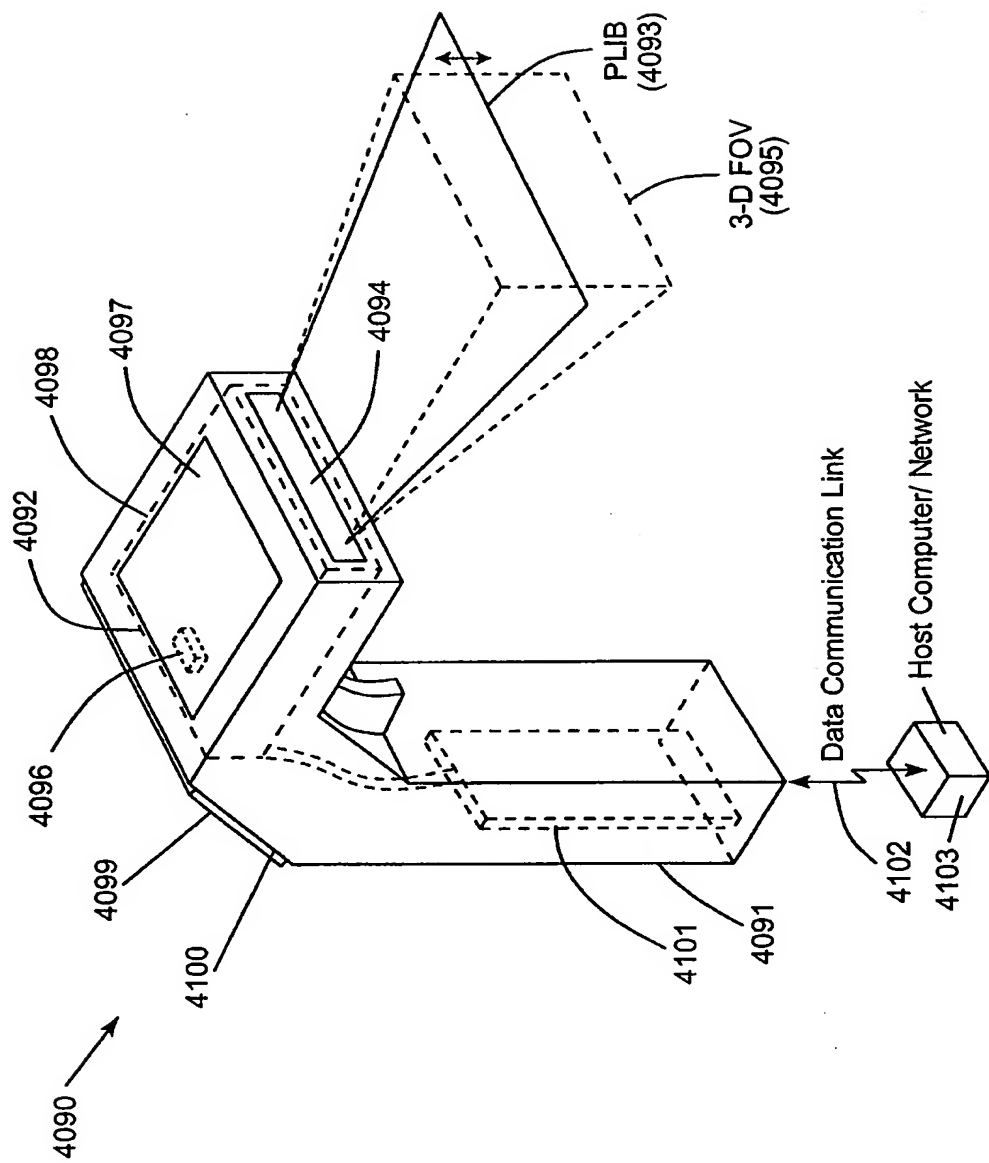


FIG. 55A

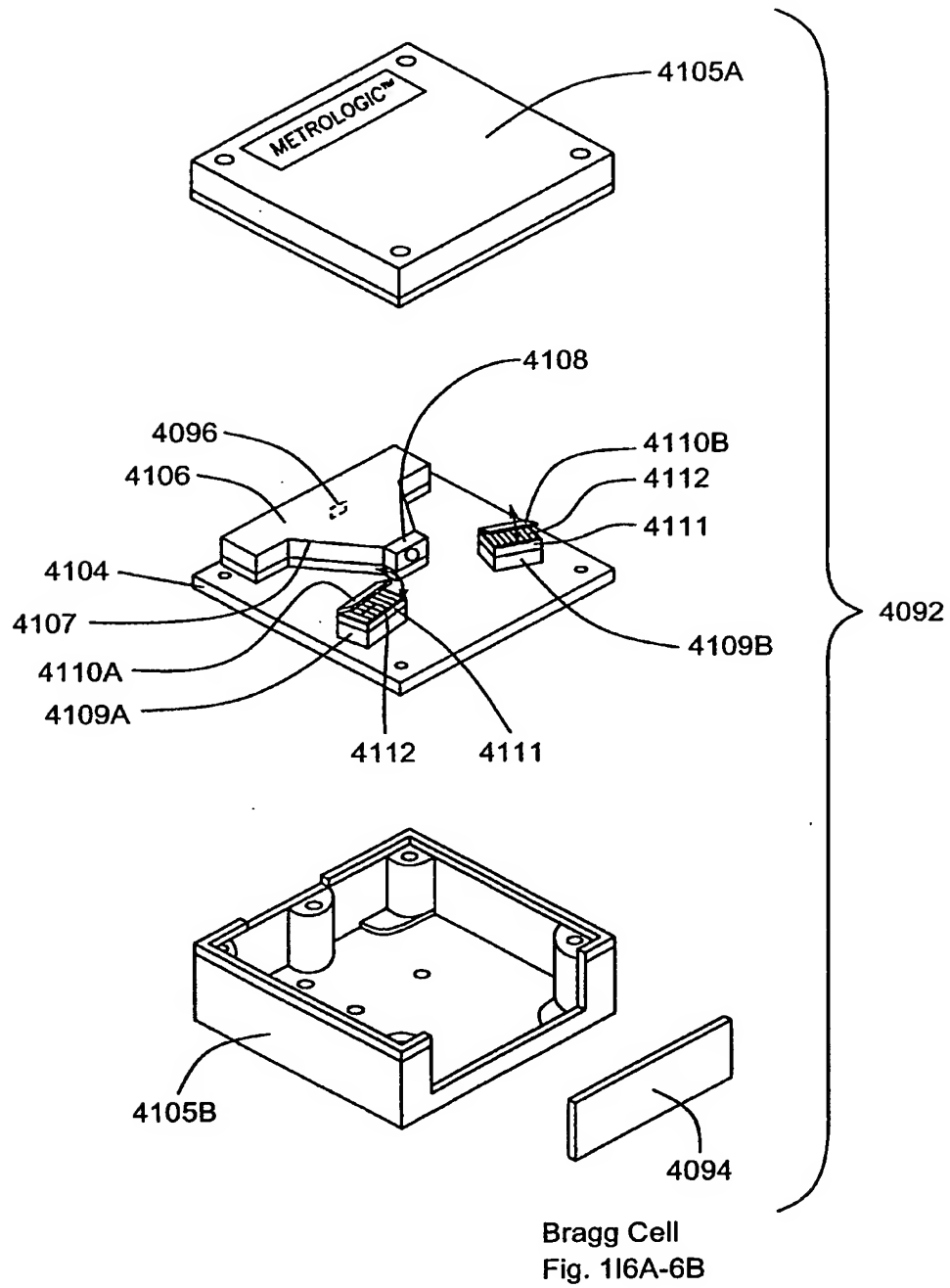


FIG. 55B

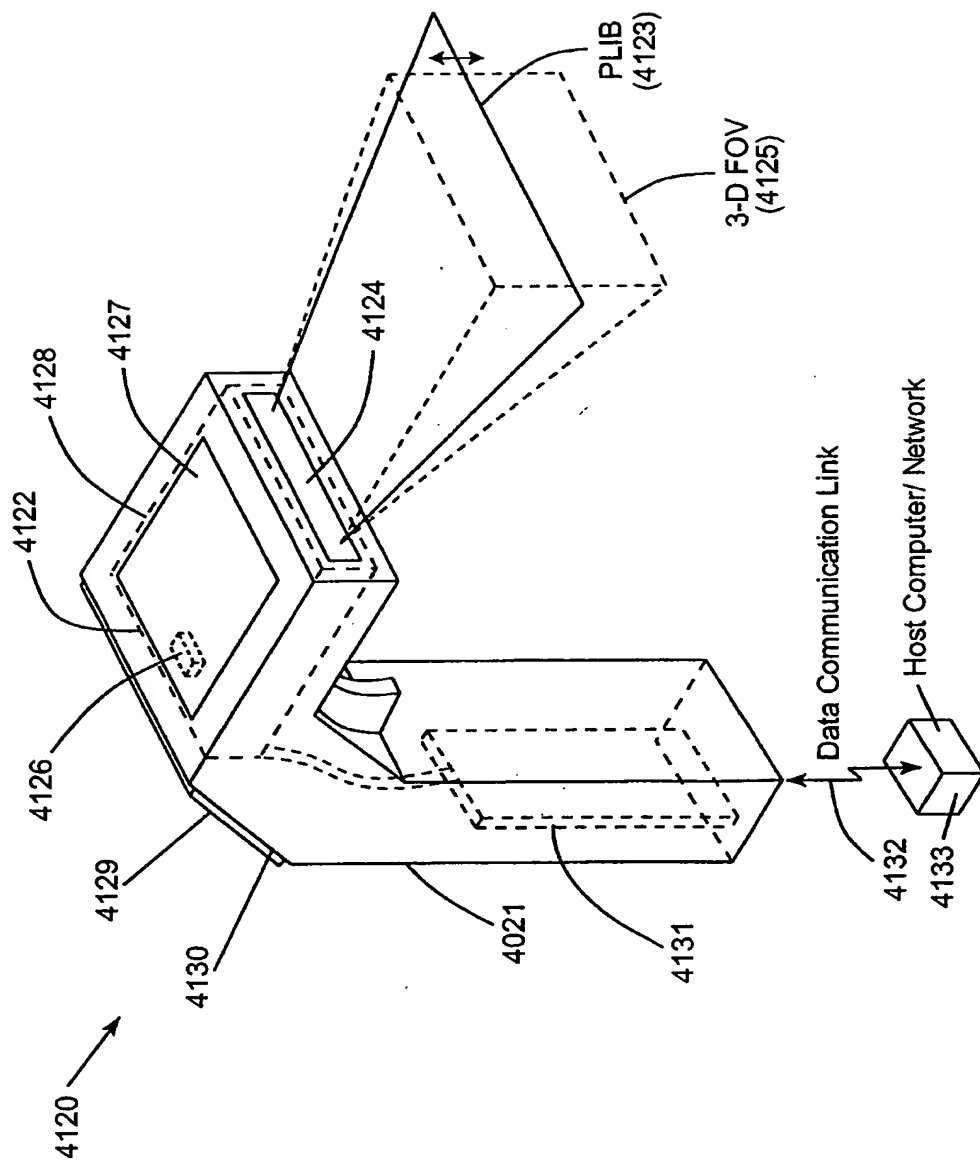
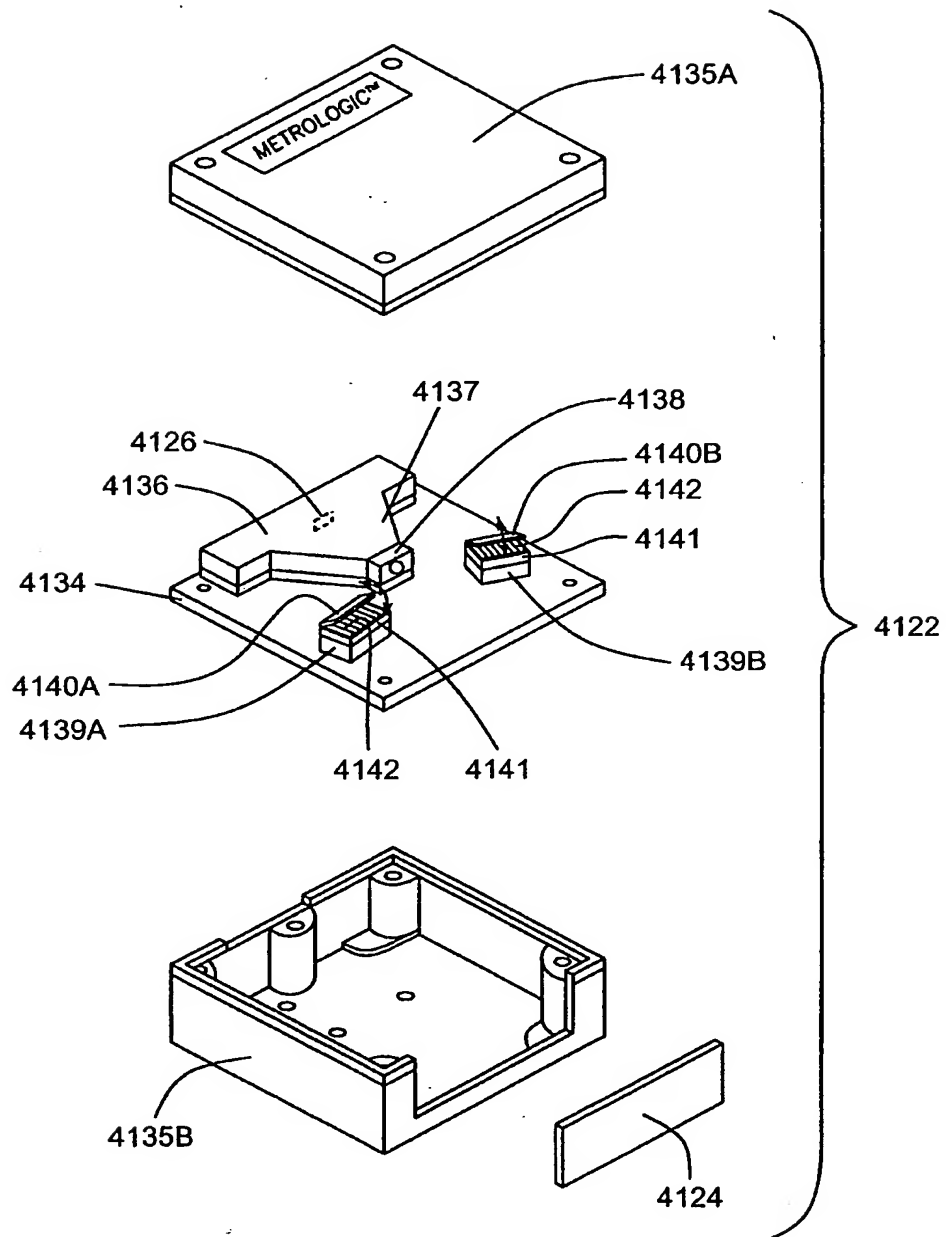


FIG. 56A



DM
Fig. 117A-7B

FIG. 56B

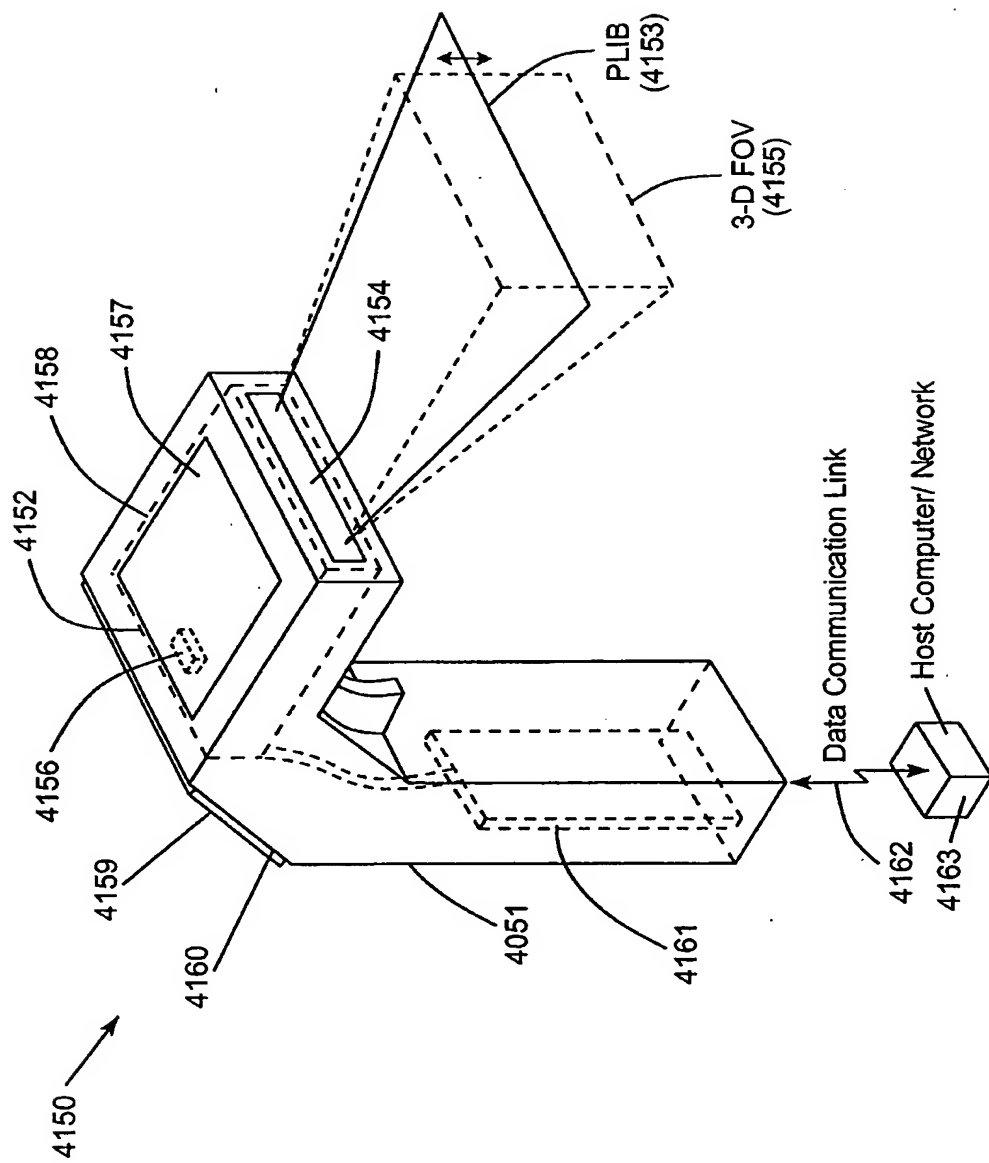


FIG. 57A

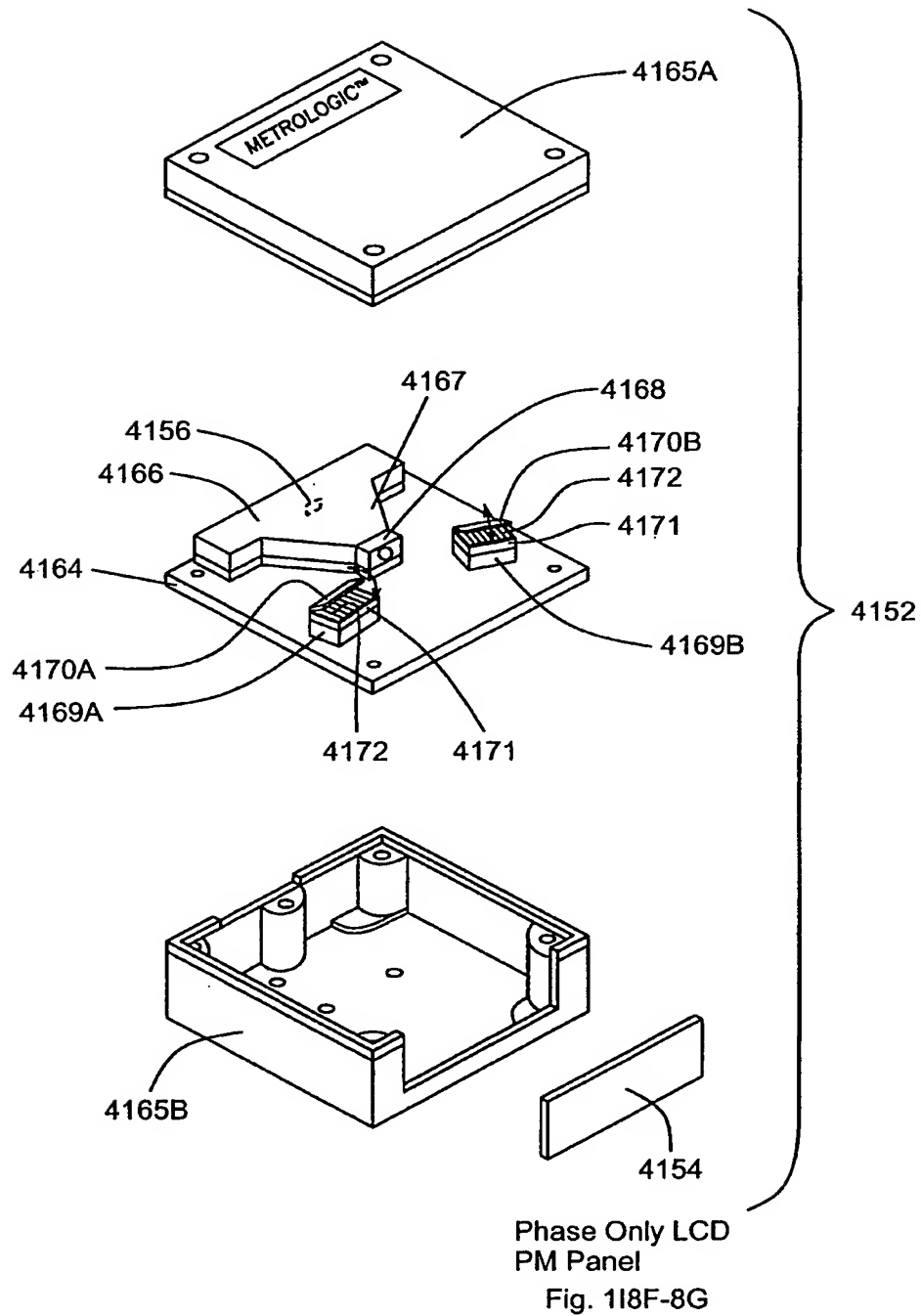


FIG. 57B

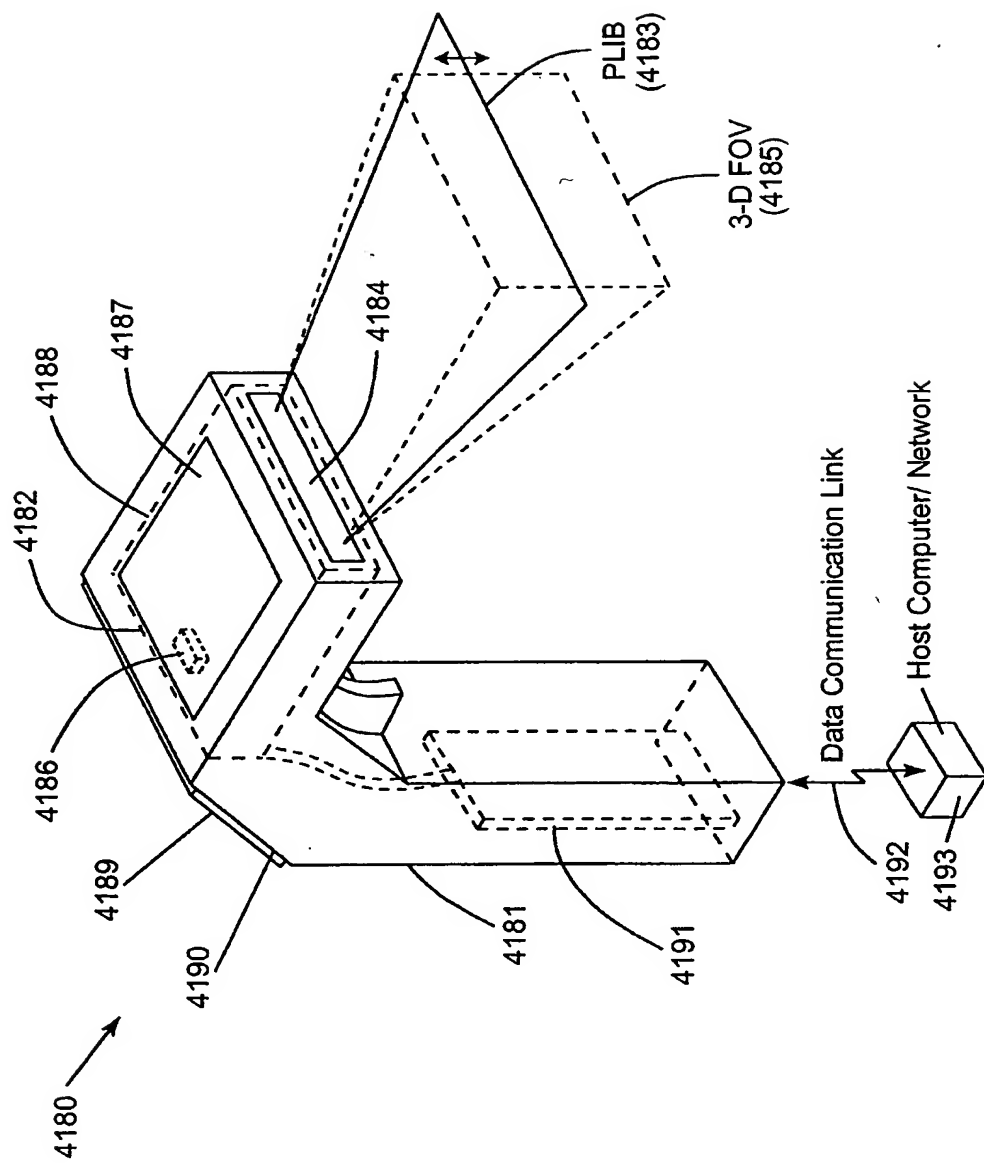
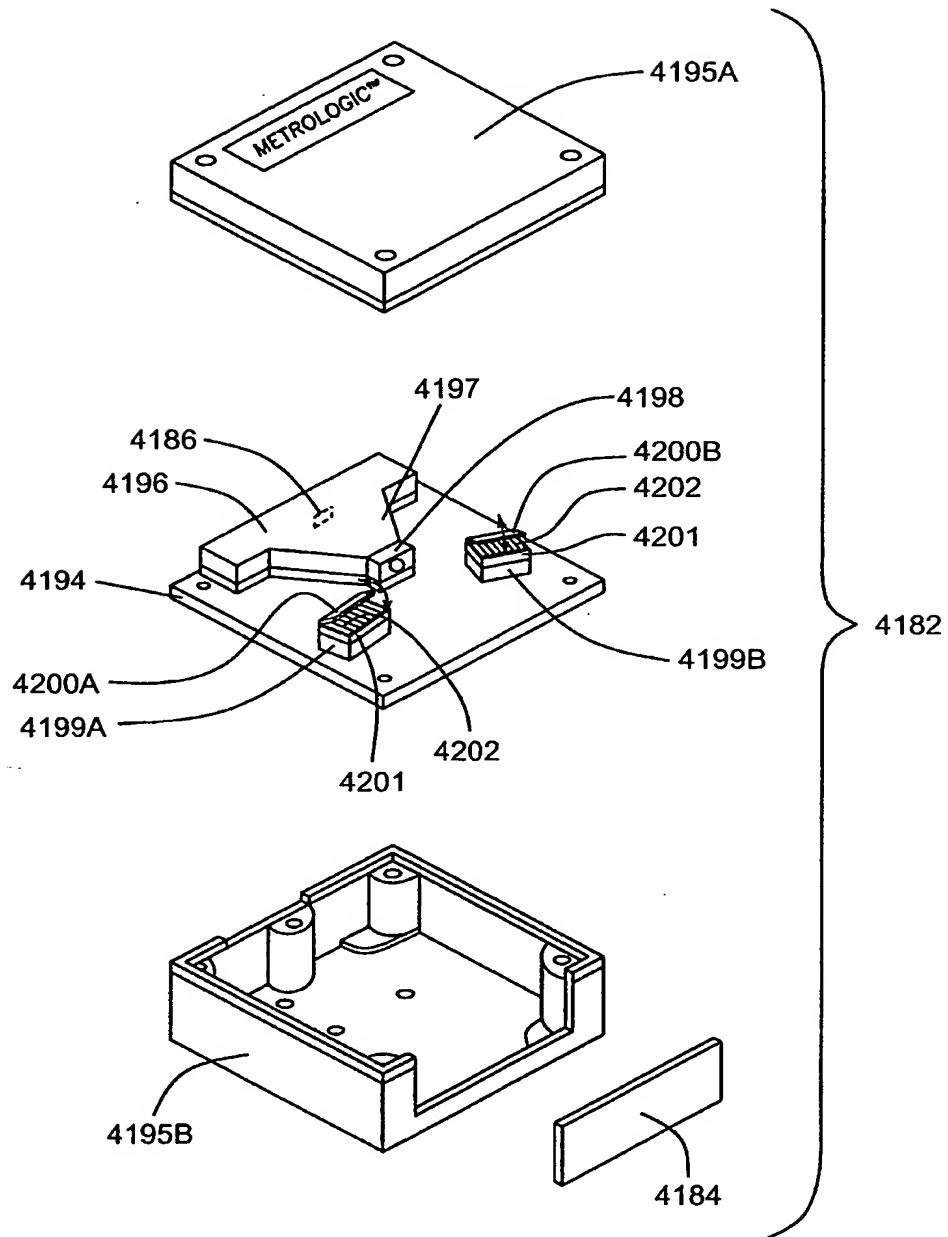


FIG. 58A



HS Optical Shutter
Fig. 1114A-14B

FIG. 58B

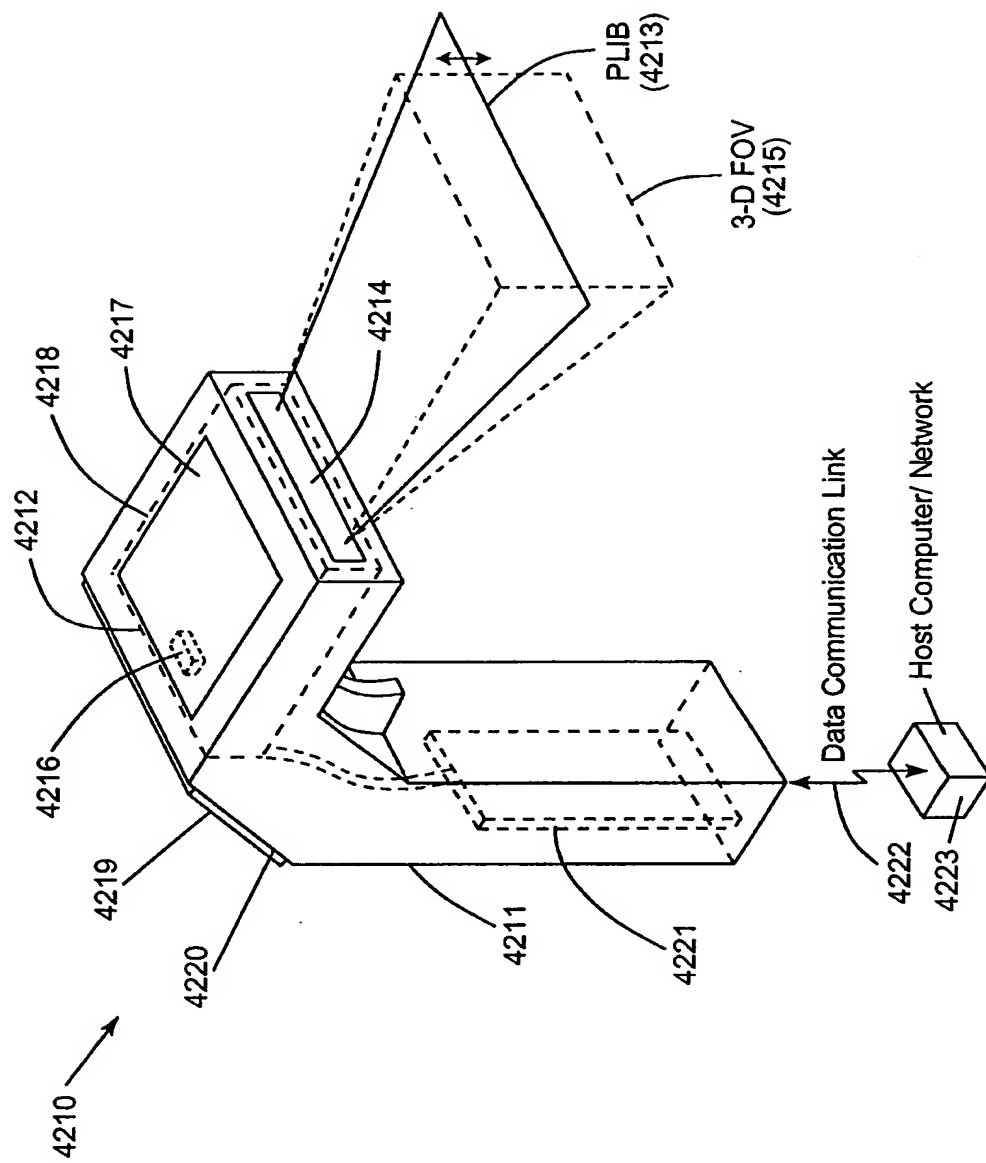
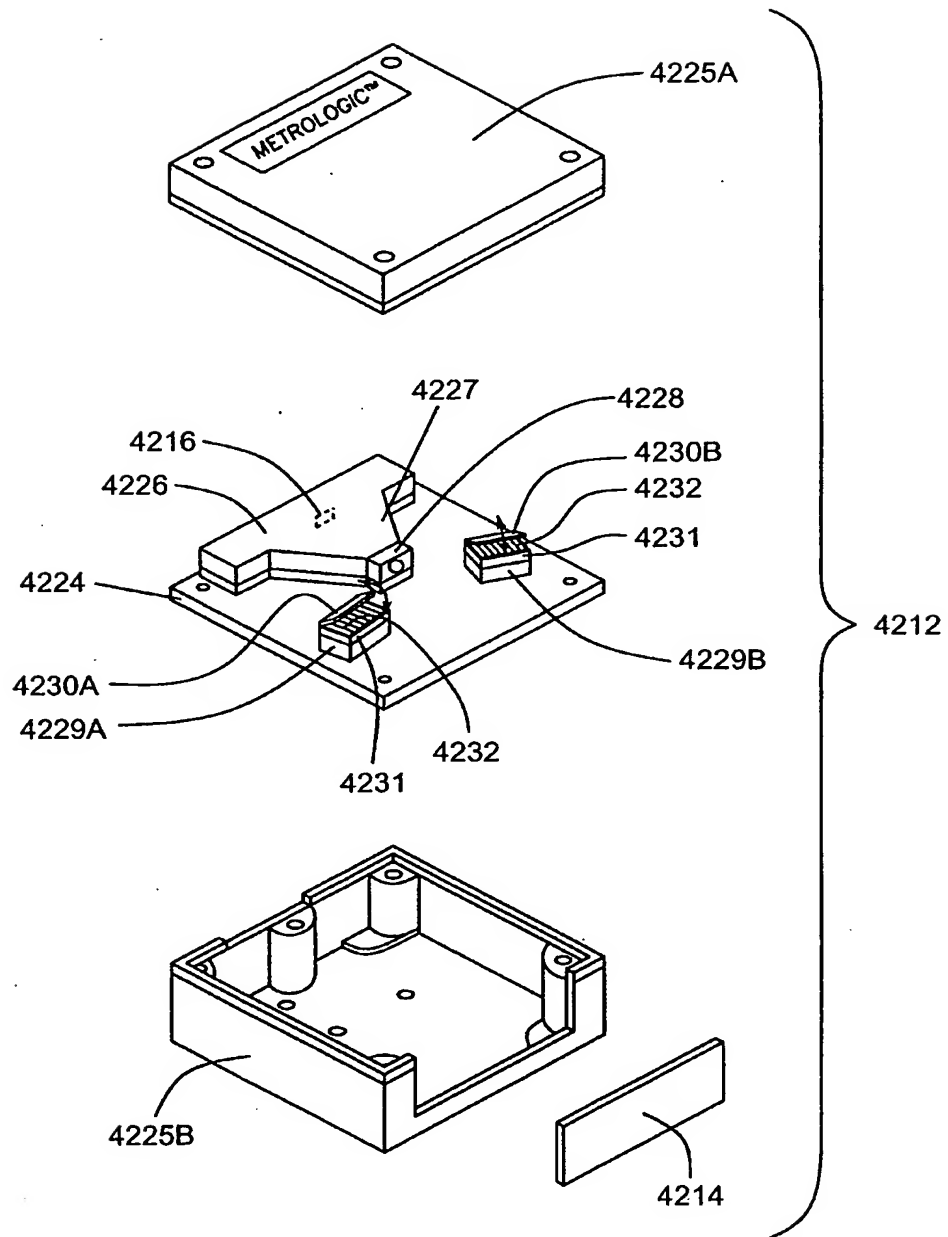


FIG. 59A



MLLD
Fig. 1115A-15B

FIG. 59B

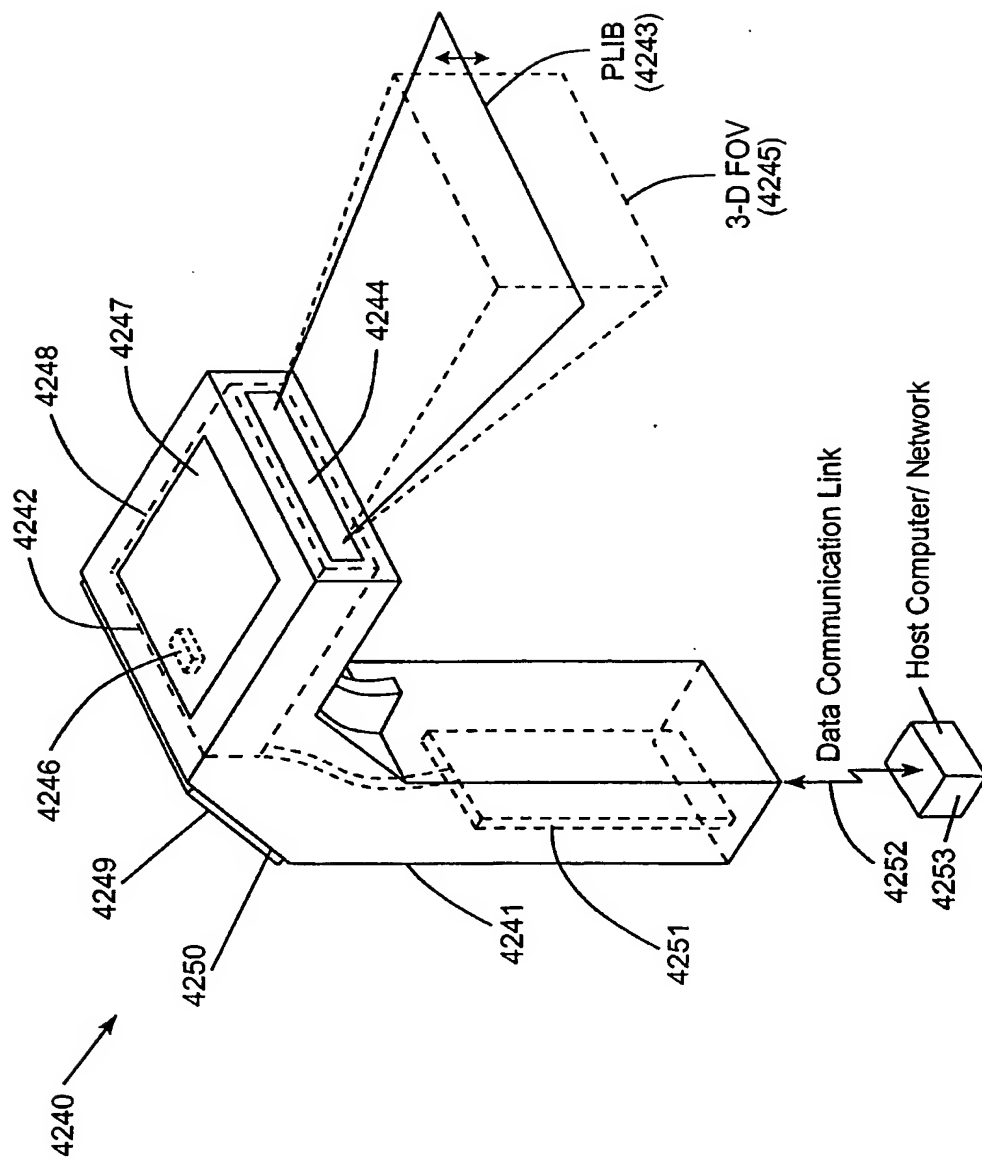
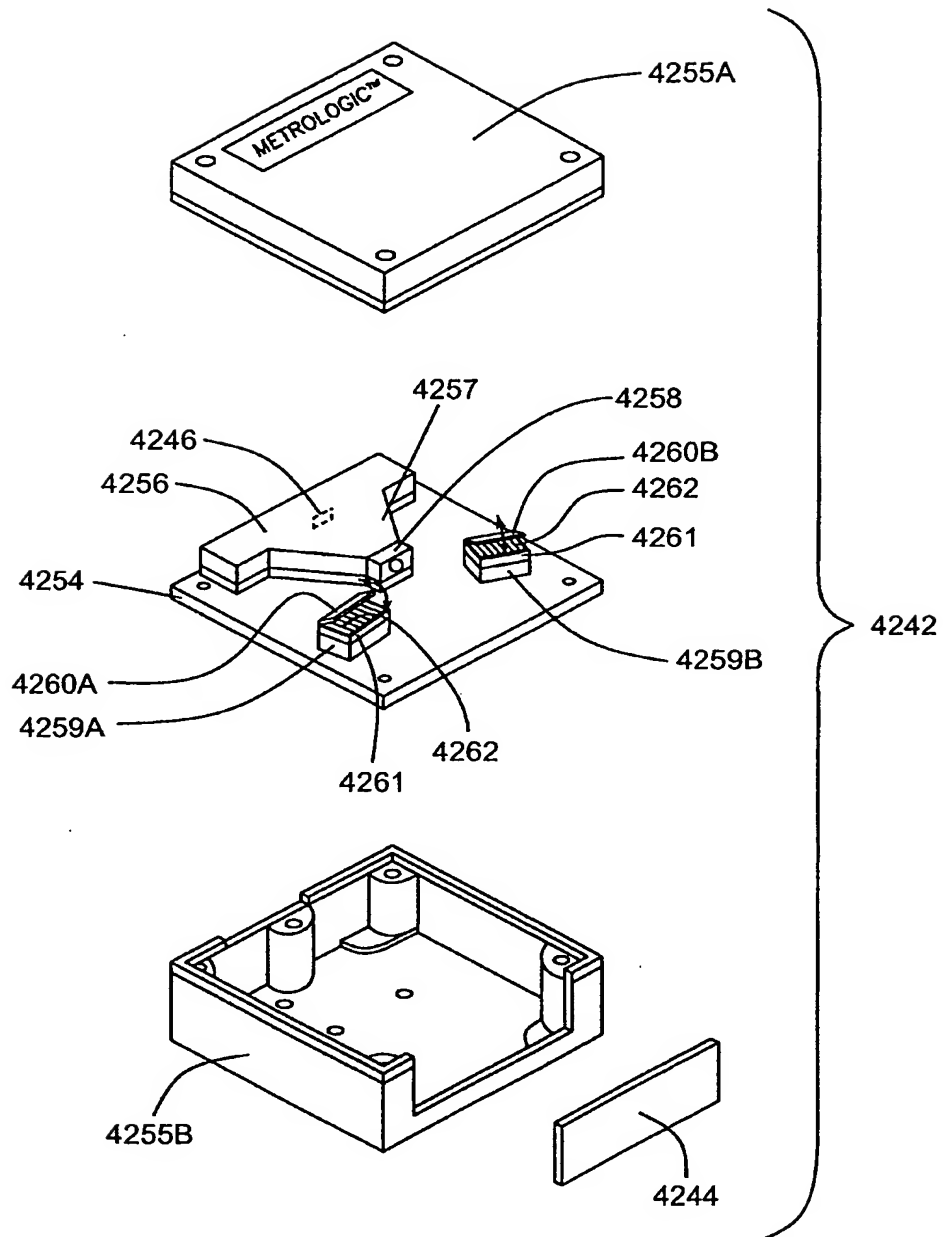


FIG. 60A



Etalon (Temp. Phase Mod.)
Fig. 1117A-17B

FIG. 60B

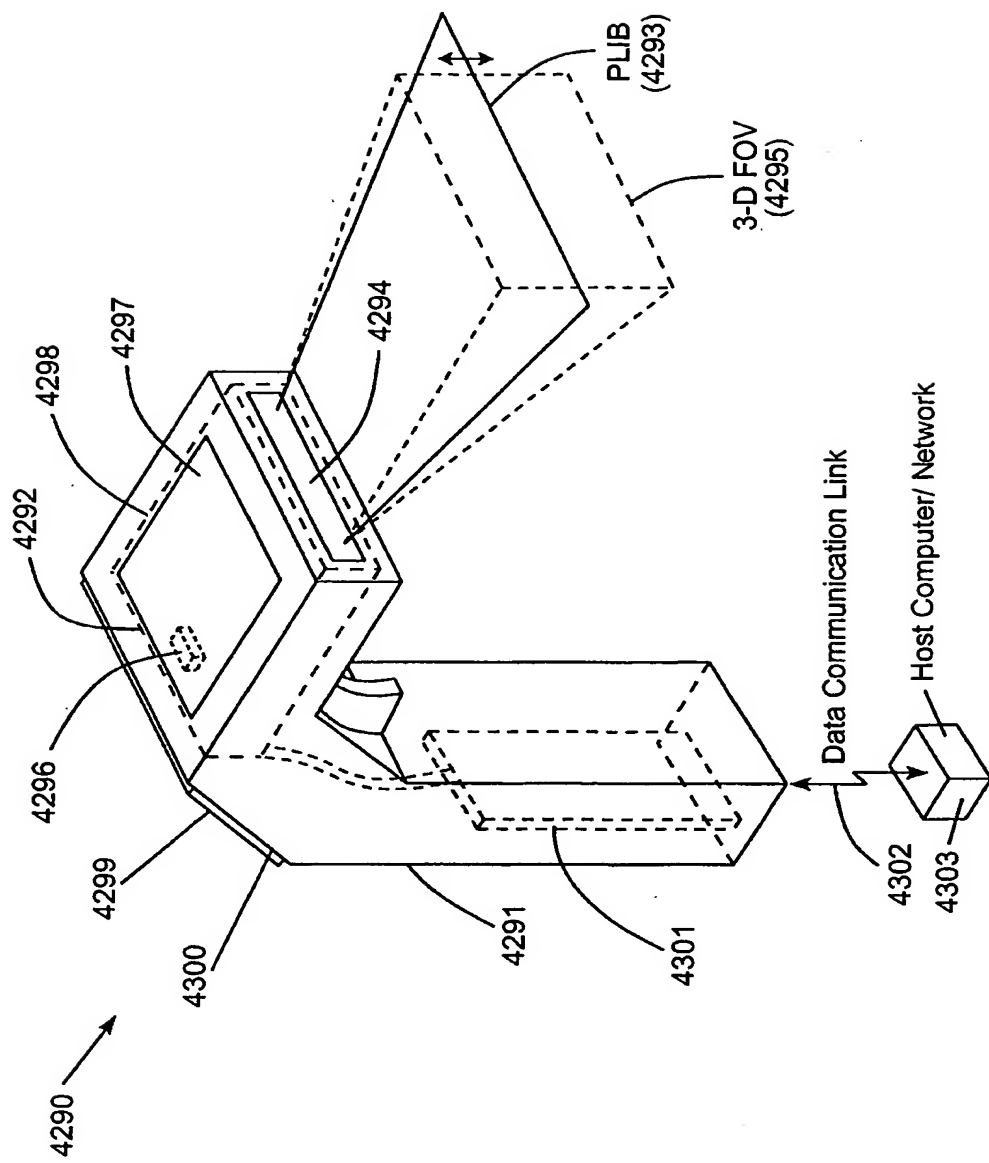
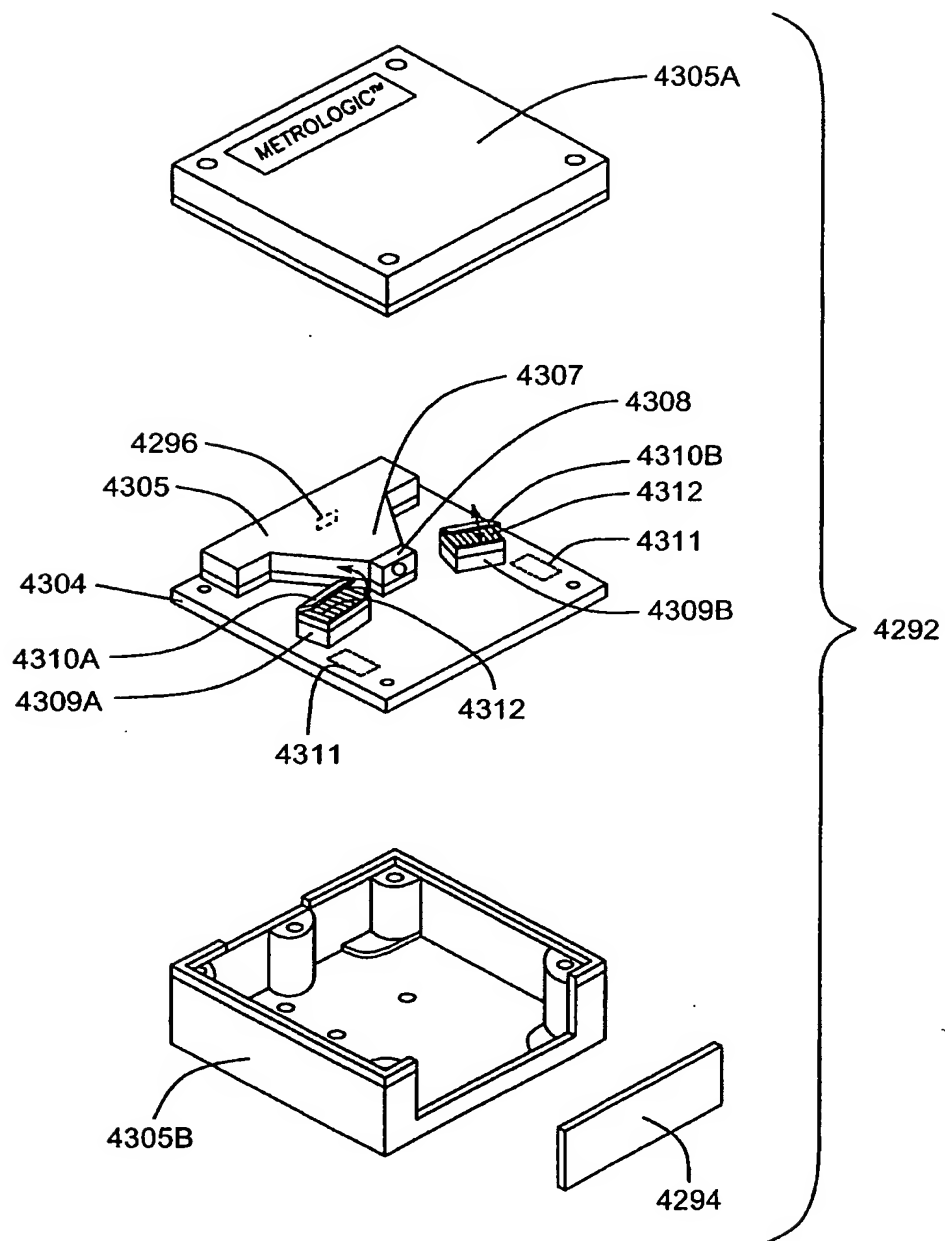


FIG. 61A



Mode Hopping
Fig. 1119A-19B

FIG. 61B

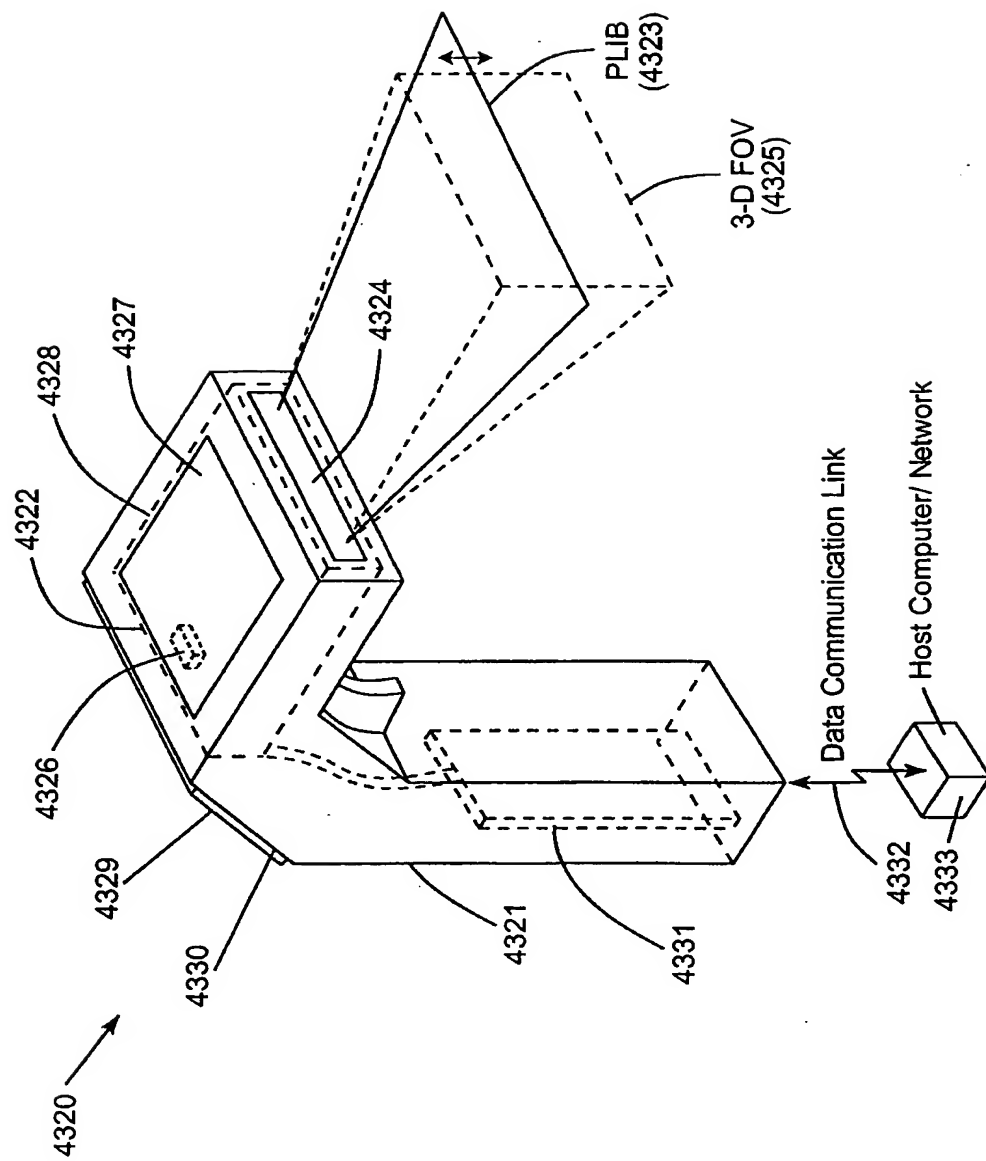
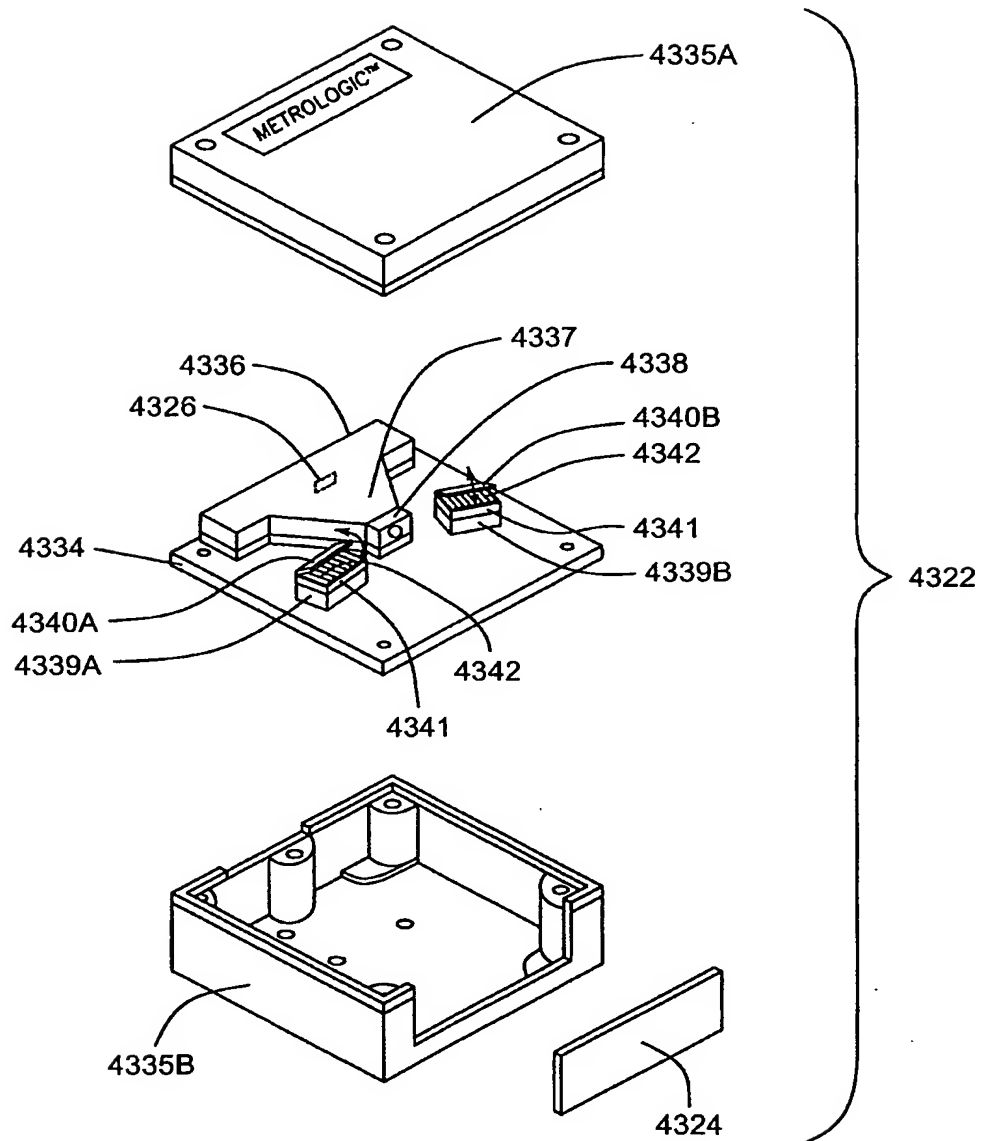


FIG. 62A



Micro-oscillating
Spatial Intensity
Modulation Panels
Fig. 1121A-21D

FIG. 62B

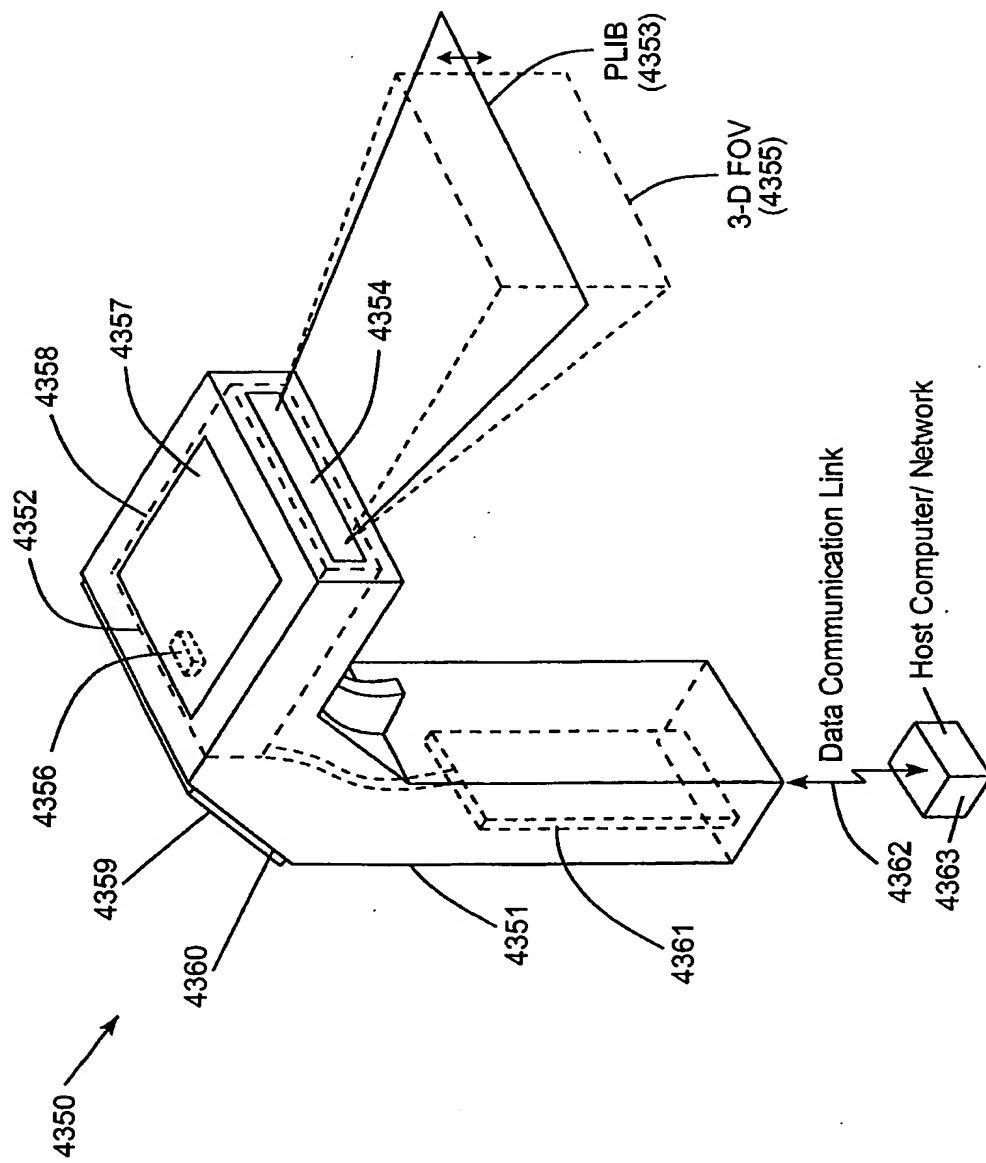
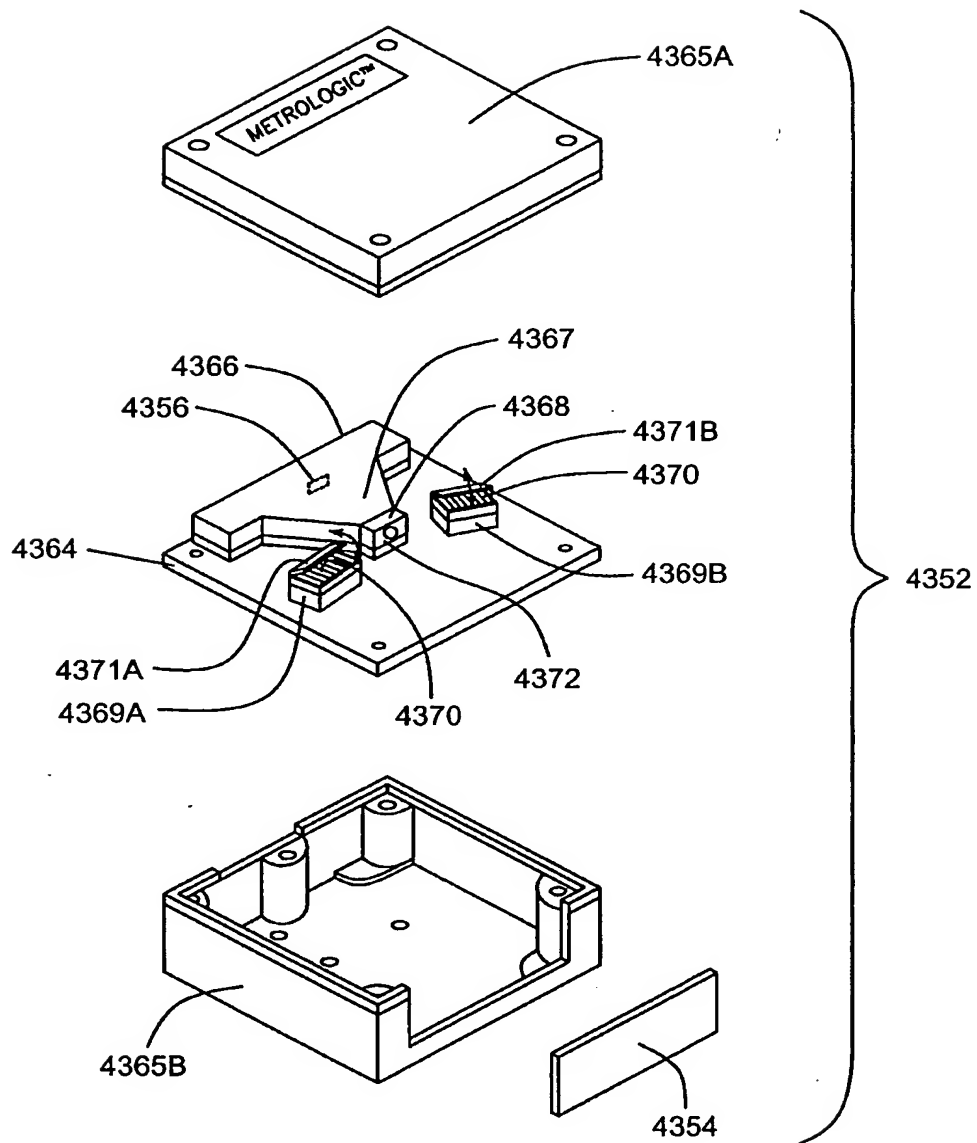


FIG. 63A



EO or Mechanically
Rotating Iris
Fig. 1123A-23B

FIG. 63B

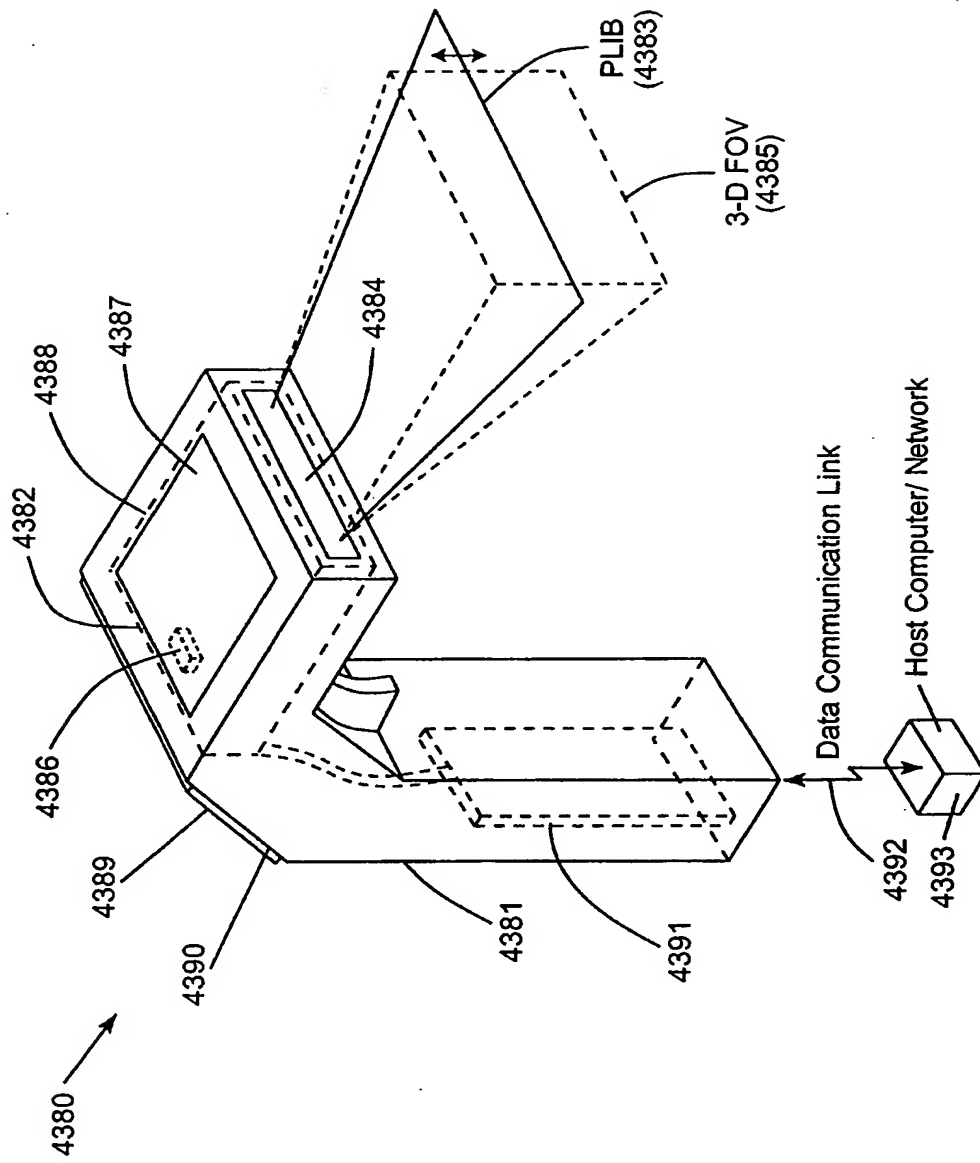
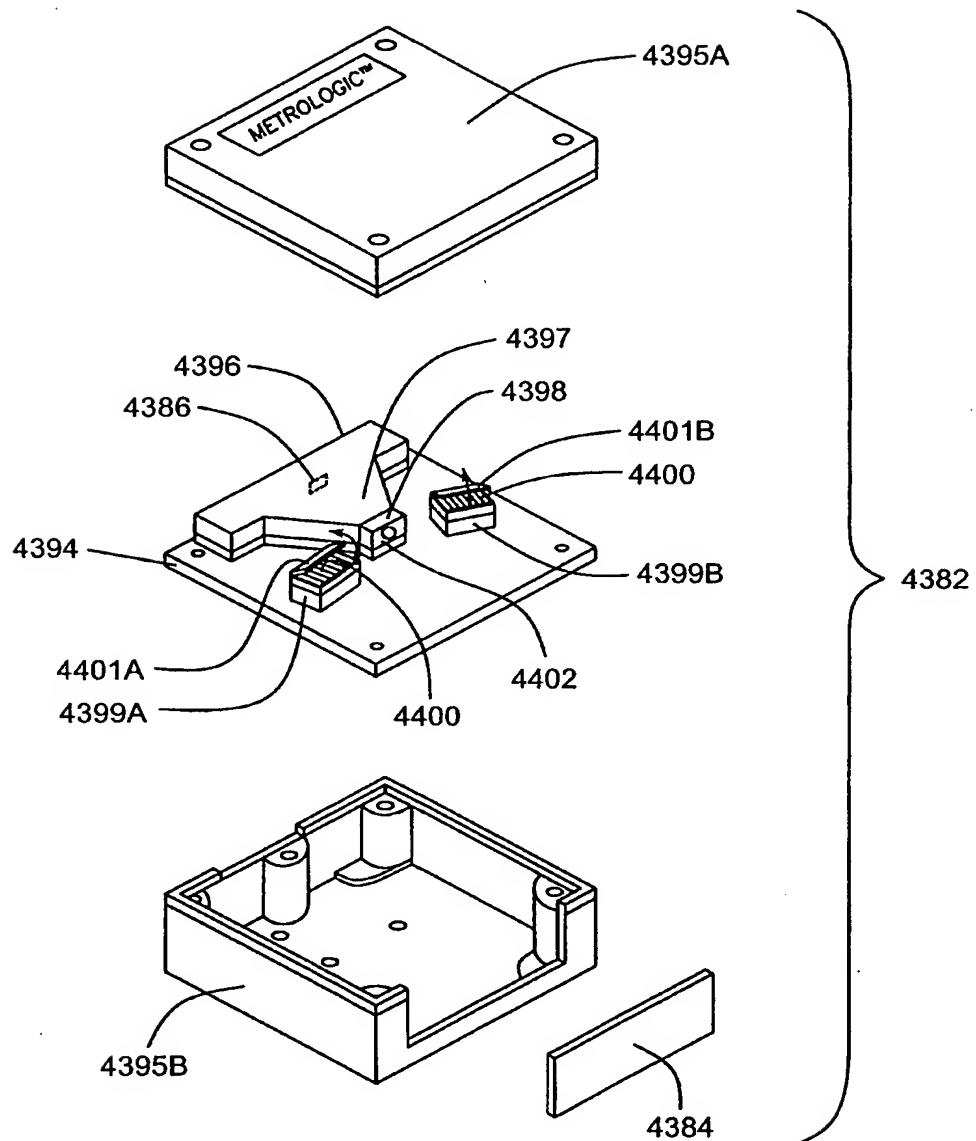


FIG. 64A



E-optical Shutter
Before IFD Lens
Fig. 1124A

FIG. 64B

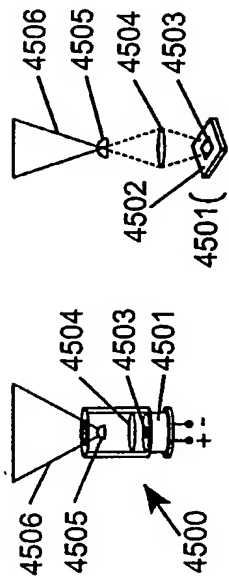


FIG. 65A

FIG. 65B

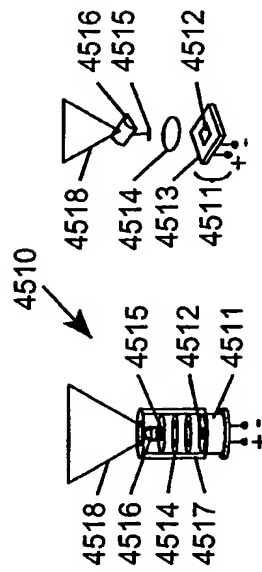


FIG. 66A

FIG. 66B

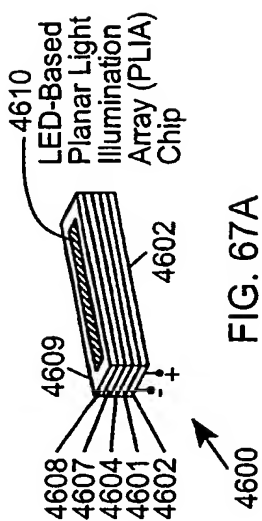


FIG. 67A

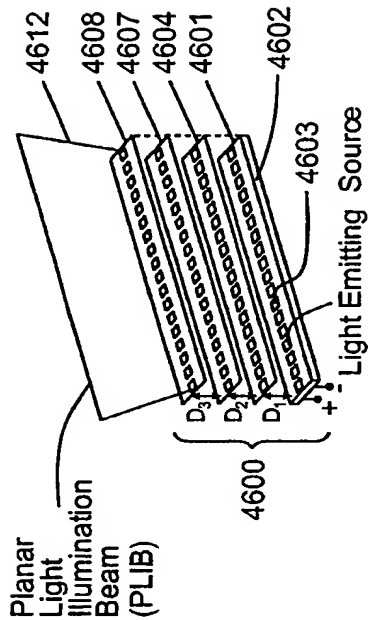


FIG. 67B

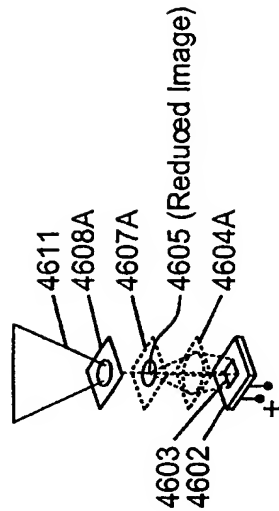


FIG. 67C

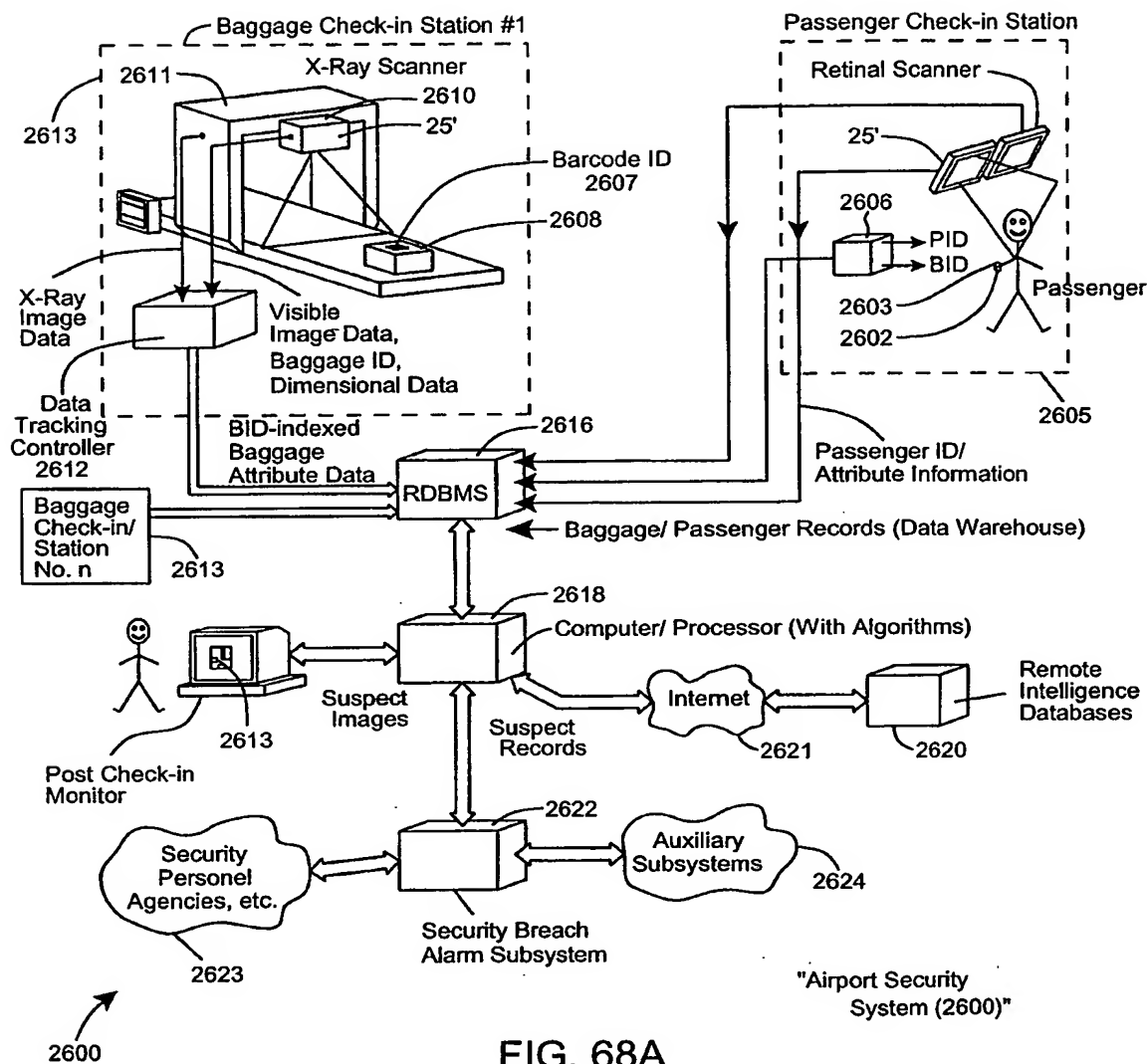


FIG. 68A

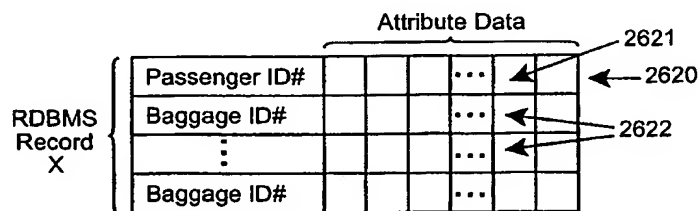


FIG. 68B